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ABSTRACT

This report presents data about recipients of research doctorates awarded by U.S. universities from July 1, 1997 through June 30, 1998. The information is taken from the 1998 Survey of Earned Doctorates, an annual census of new research doctorate recipients. During 1998, 387 universities in the United States conferred 42,683 doctorates, slightly more (0.3%) than in 1997, marking the 13th straight year of increase in doctorates awarded. U.S. citizens earned 27,532 of the 1998 research doctorates. The largest number of doctorates awarded was in the broad field of life sciences, in which 8,540 Ph.D.s were earned. Women received 17,856 doctorates, or 41.8%, the highest percentage ever for women. U.S. citizen racial minorities earned 14.7% of the doctorates earned by U.S. citizens in 1998, the largest percentage ever. The median time to receiving the doctorate since earning the baccalaureate was 10.4 years in 1998, with median time to degree since first enrollment in any graduate program being 7.3 years. The typical Ph.D. recipient was just under 34 years of age at the time the degree was conferred. Three in five (60.6%) of all doctorate recipients in 1998 reported fellowships or teaching/research assistantships from programs or institutions as their primary source of financial support for graduate education. Only half of the doctorate recipients reported educational indebtedness at the time of graduation. Almost 70% of new doctorate recipients reported definite postgraduate commitments for employment or study. (Contains 15 figures and 47 tables.) (SLD)

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Doctorate Recipients from United States Universities:

Summary Report 1998

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Survey of Earned Doctorates

SPONSORED BY THE NATIONAL SCIENCE FOUNDATION, THE NATIONAL INSTITUTES OF HEALTH, THE NATIONAL ENDOWMENT FOR THE HUMANITIES, THE U.S. DEPARTMENT OF EDUCATION, AND THE U.S. DEPARTMENT OF AGRICULTURE

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HIGHLIGHTS

This report presents data about recipients of research doctorates awarded by U.S. universities from July 1, 1997, through June 30, 1998. The information is taken from the 1998 Survey of Earned Doctorates, an annual census of new research doctorate recipients.

- During 1998, 387 universities in the United States conferred a total of 42,683 doctorates, slightly more (0.3 percent) than in 1997. The number of doctorates earned has increased for 13 consecutive years. U.S. citizens earned 27,352 of the 1998 research doctorates.

- The largest number of doctorates awarded was in the broad field of life sciences, in which 8,540 Ph.D.s were earned. The number of degrees conferred in the other broad areas were 7,075 in social sciences; 6,739 in the physical sciences; 6,559 in education; 5,919 in engineering; 5,499 in humanities; and 2,352 in business and other professional areas. The number of doctorates granted in the fields of humanities and engineering has increased the most over the past decade (55 percent and 41 percent).

- Women received 17,856 doctorates, or 41.8 percent of all doctorates granted in 1998, the highest percentage ever for women. Over the past 40 years, the rate of growth for female doctorates has averaged 7.5 percent per year, compared with just under 3 percent annually for male doctorates. The number of men earning doctorates in 1998 declined for the second straight year. Among U.S. citizens, 47.7 percent of doctorates were earned by women. By broad field the percentages of research doctorates earned by women in 1998 were 62.8 percent in education, 54.2 in the social sciences, 48.6 in the humanities, 45.4 percent in the life sciences, 41.6 percent in business/professional, 23.7 percent in the physical sciences, and 13.0 in engineering.

- U.S.-citizen racial/ethnic minority groups earned 14.7 percent of the doctorates earned by U.S. citizens in 1998—the largest percentage ever. Among the U.S. citizens who identified their race/ethnicity (96.9 percent), blacks earned 1,467 doctorates; Hispanics, 1,190; Asians (including Pacific Islanders), 1,168; and American Indians (including Alaskan Natives), 189. Blacks were the predominant minority group receiving doctorates in education, and Asian Americans predominated in engineering.

- U.S. citizens received 71.3 percent of all doctorates earned in 1998 by individuals with known citizenship status (92.7 percent of all recipients). China was the country of origin for the largest number of non-U.S. doctorate recipients with 2,571, followed by India with 1,259, Taiwan with 1,110, Korea with 710, and Canada with 448. By broad field, the percentage of doctorates earned by U.S. citizens ranged from 47.0 percent in engineering and 58.5 percent in physical sciences, to 82.9 percent in humanities and 90.3 percent in education.

- Median time to receiving the doctorate since earning the baccalaureate was 10.4 years in 1998. Median time to degree since first enrollment in any graduate program was 7.3 years. The typical Ph.D. recipient was just under 34 years of age at the time the degree was conferred.

- Three in five (60.6 percent) of all doctorate recipients in 1998 reported fellowships or teaching/research assistantships from programs or institutions as their primary source of financial support for graduate education. Only half (49.1 percent) of all doctorate recipients reported educational indebtedness (loans) at the time of graduation.

- The percentage of Ph.D.s reporting definite postgraduation commitments for employment or study was 69.6 percent in 1998—about 70 percent of them will work and 30 percent will continue as postdoctorates. Among U.S. citizens and those holding permanent visas with firm employment plans, 50 percent were entering academe as their planned work sector. About one-fourth indicated industry or self-employment; 8.2 percent said some level of government; while the remaining 17.4 percent indicated "other."

Doctorate Recipients from United States Universities: Summary Report 1998

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Thomas Hoffer
Lance Selfa

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NOTICE

This report is based on data collected in the Survey of Earned Doctorates (SED) conducted for the National Science Foundation (NSF), the National Institutes of Health (NIH), the National Endowment for the Humanities (NEH), the U.S. Department of Education (USED), and the U.S. Department of Agriculture (USDA) by the National Opinion Research Center (NORC) under NSF Contract No. SRS-9712655. Findings in this publication represent analyses developed by NORC, which have been reviewed, but not necessarily verified, by the participating Federal agencies and do not necessarily reflect the views of the sponsoring agencies.

NSF publications from the Survey of Earned Doctorates and the Doctorate Records File are available free on request. (See inside back cover.) Standardized tables on baccalaureate origins of Ph.D.s by major field of doctorate and trend tables on citizenship, race/ethnicity, and sex of Ph.D.s by fine field of doctorate are available for a fee. Customized tables can also be prepared at cost. For more information, please contact:

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*** IMPORTANT NOTICE ***

The estimates reported for the Survey of Earned Doctorates (SED) are simple tabulations of all available information, with no adjustment for nonresponse. Therefore, differences in response rates from year to year can produce numerical fluctuations that are unrelated to real trends.

Although response to the SED has been as high as 95 to 98 percent over time, it declined to 92 percent during the 1980s. In an effort to improve the response rate, the survey methodology was modified in the years after 1989. Response rose, stabilizing around 95 percent from 1991 to 1995. However, the response rates for 1996 and 1997 were 92.8 percent and 91.5 percent, respectively. This year, the response rate again was 91.5 percent. (*Note:* These percentages represent *self-report rates,* that is, the proportion of questionnaires completed by doctorate recipients. While survey forms containing partial information filled in by either the doctoral institution or the survey contractor are not included in these rates, tables in this report incorporate the available data from these sources.) The self-report rate for 1998 may increase slightly in the next year if additional questionnaires are received from doctorate recipients. See appendix C for a table giving survey response rates from 1967 to 1998.

Item response rates have shown a pattern of improvement since 1990—a natural consequence of the increase in the overall self-report rate, as well as a result of format revisions to the questionnaire and follow-ups for missing information. In 1990, new follow-up procedures were implemented to increase coverage of several variables: birth year, sex, race/ethnicity, citizenship status, country of citizenship, baccalaureate year and institution, and postgraduation plans. Response rates for these variables have since improved—especially for citizenship and race/ethnicity, resulting in an increase in the reported numbers of minority Ph.D.s. (However, for 1997 and 1998 the citizenship response rate of 92 percent is lower than it was in 1990-1996.) Whether or not individuals completed the survey questionnaire, the following four data items are available for most all recipients: sex and Ph.D. institution, field, and year.

The data for a given year are updated the following year with any responses received *after* survey closure. Postsurvey adjustment was most significant for 1990 and 1991 Ph.D.s, with the largest impact on the number of blacks. For both of these years, the total number of black Ph.D.s increased by about 7.5 percent in the year after survey closure. The survey cycle was then extended to allow receipt of more follow-up information before closure, resulting in much smaller postsurvey adjustments for the 1992 through 1995 data (a 1.4 percent increase in black Ph.D.s for 1992, a 0.2 percent increase for 1993, a 0.5 percent increase for 1994, and a 1.5 percent increase for 1995).

Adjustments to data are presented in reports subsequent to the initial report for a survey. For example, updates for 1994 appeared in *Summary Report 1995*. Updates to 1998 data will be presented in next year's report.

DOCTORATE RECIPIENTS FROM UNITED STATES UNIVERSITIES: SUMMARY REPORT 1998

Introduction

Doctorate Recipients from United States Universities: Summary Report 1998 is the thirty-second in a series of reports on research doctorates awarded by colleges and universities in the United States.[1] The data presented in this report are from the annual Survey of Earned Doctorates (SED), a census of research doctoral recipients who earned their degrees between July 1, 1997, and June 30, 1998. This survey, conducted since 1958, is sponsored by five Federal agencies: the National Science Foundation, the National Institutes of Health, the National Endowment for the Humanities, the U.S. Department of Education, and the U.S. Department of Agriculture. All survey responses become part of the Doctorate Records File (DRF), a virtually complete database on doctorate recipients from 1920 to 1998.

The overall response rate for the 1998 survey was 91.5 percent.[2] In a few item areas, missing data could affect the reliability of the conclusions; those items are indicated explicitly when they occur. Please consult the "Important Notice" on page vii for further details.

Organization

Summary Report 1998 begins by reviewing overall trends in research doctorates awarded by U.S. universities and continues by discussing trends in the seven broad fields in which research doctorate recipients earn their degrees. Trends in doctorate awards by sex, race/ethnicity, and citizenship are described next, and the report concludes with discussion of time-to-degree statistics, sources of financial support during graduate school, and the postgraduation status and plans of doctorate recipients at the time the degree is awarded.

A detailed profile of the indebtedness reported by doctorate recipients follows the main report. This special section assesses indebtedness by race/ethnicity, institution type, and citizenship, as well as examining the relationship between indebtedness and sources of support, postgraduation status, and such demographic factors as marital status and number of dependents. The tabulations in this section are limited, for the most part, to U.S. citizens, because their data on indebtedness are relevant to Federal policies on graduate financial aid.

Figures displaying selected trend data accompany the brief narratives of key survey findings. The numbers and percentages from which the figures are drawn are contained in a set of tables following the main text. A reference at the bottom of each figure indicates the corresponding table number. Basic tables of statistics for 1998 research doctorate recipients are shown in appendix A, and trend tabulations for the previous ten-year period (1988 to 1998) are presented in appendix B. Appendix C provides technical notes, including response rates, and other information related to tables and figures in the report. Appendix D is the SED questionnaire for the 1998 academic year.

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[1] The Survey of Earned Doctorates collects information on *research* doctorates only. This survey differs from the U.S. Department of Education's collection of the number of doctorate degrees awarded per institution for all fields. For an evaluation of the differences, see National Science Foundation, 1993, *Science and Engineering Doctorates 1960-1991*, NSF 93-301, Detailed Statistical Tables, pp. 2-6, Washington, DC.

[2] See appendix C for information on response rates for the SED.

Trends in Doctorate Recipients

Overall Numbers and Rates of Growth

During the 1998 academic year (July 1, 1997, through June 30, 1998), U.S. universities awarded a total of 42,683 research doctorate degrees,[3] marking the thirteenth straight year in which the absolute number of doctorates increased. The annual growth rate from 1997 to 1998, 0.3 percent, was the same rate as for the preceding year.[4] Over the past few years, the rate of increase has become markedly smaller than earlier in the decade. (See table 1.)

In absolute numbers, 42,683 represents an increase of 2,882 doctorates over the number for 1993 and is 9,183 more than in 1988.[5] For the 10-year interval between 1988 and 1998, U.S. universities collectively awarded almost 400,000 doctorates (397,048), as compared to a total of 316,413 for the preceding 10-year period. U.S. institutions have awarded more than one million doctorates (1,174,442) over the last 40 years, of which 33.8 percent were granted within the last 10 years (figures 1 and 2).

The aggregate figure for 1998 is the largest number ever for any single academic year: an increase of 2,882 doctorates or 7.2 percent higher than 5 years ago and 9,183 or 27.4 percent more than 10 years ago. Only the 17-year interval between 1957 and 1974 was a longer period of consecutive annual growth. (See figures 1 and 2.)

In general for the 1998 academic year, 58.2 percent of doctorate recipients were male, about two-thirds were U.S. citizens, and 62.7 percent were white. The typical recipient was slightly under 34 years of age at the time the degree was awarded. About three in ten recipients (29.2 percent) had never been married; 6.9 percent were either widowed, divorced, or separated; and 63.9 percent (66.0 percent for men and 60.9 percent for women) were currently married or

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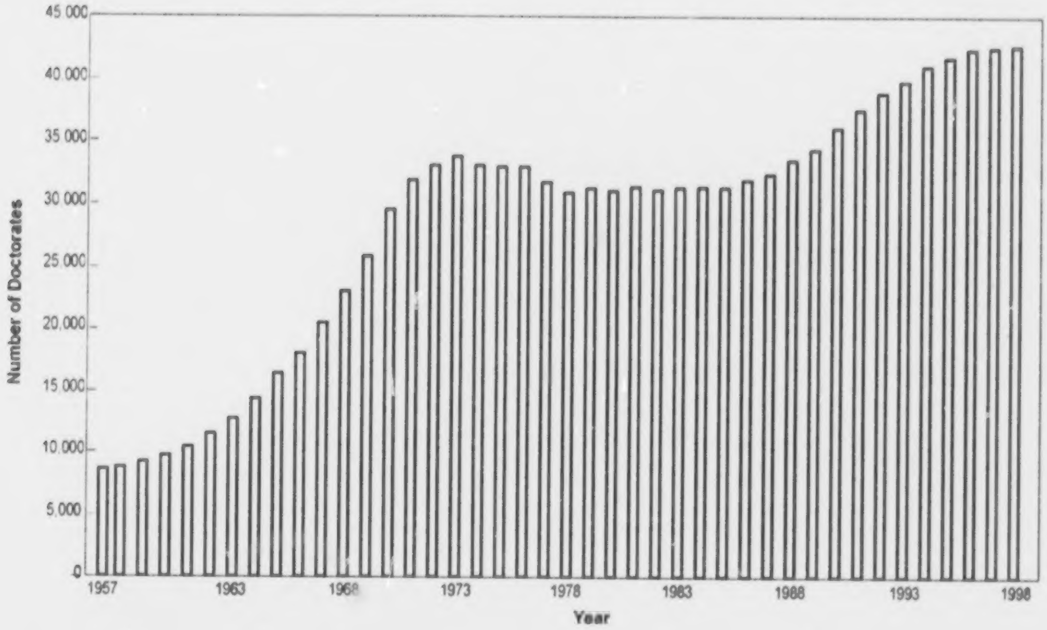
[3] Doctorates are reported by academic year (from July 1 of one year through June 30 of the following year) and include *research* and *applied research doctorates* in all fields. Doctoral degrees such as the Ph.D., D.Sc., and Ed.D. are covered by this survey; professional degrees (e.g., M.D., D.D.S., J.D., Psy.D.) are not. A full list of included degrees can be found in appendix E. For convenience throughout this report, "Ph.D." or "doctorate" are used to represent any of the doctoral degrees covered by the survey. Overall, 92.0 percent of all research doctorate degrees awarded in 1998 were Ph.D.s. The percentage of doctorates that are Ph.D.s differs by broad field of study (education, professional and "other" doctorates largely being not Ph.D.s, while traditional "arts and sciences" areas grant mostly Ph.D.s), and by factors associated with broad field of study, sex, racial/ethnic, and citizenship status, and institutional type.

[4] In the initial data release and the *Summary Report 1997: Doctorate Recipients from United States Universities* (Chicago: National Opinion Research Center, 1999), the total number of doctorates for 1997 was given as 42,705. Subsequent review of the data files revealed that 150 of the degree recipients counted in 1997 actually received their doctorates in 1998. Thus, the revised 1997 total is 42,555, or 0.3 percent lower than for 1998; the revised growth rate between 1996 and 1997 was 0.3 percent.

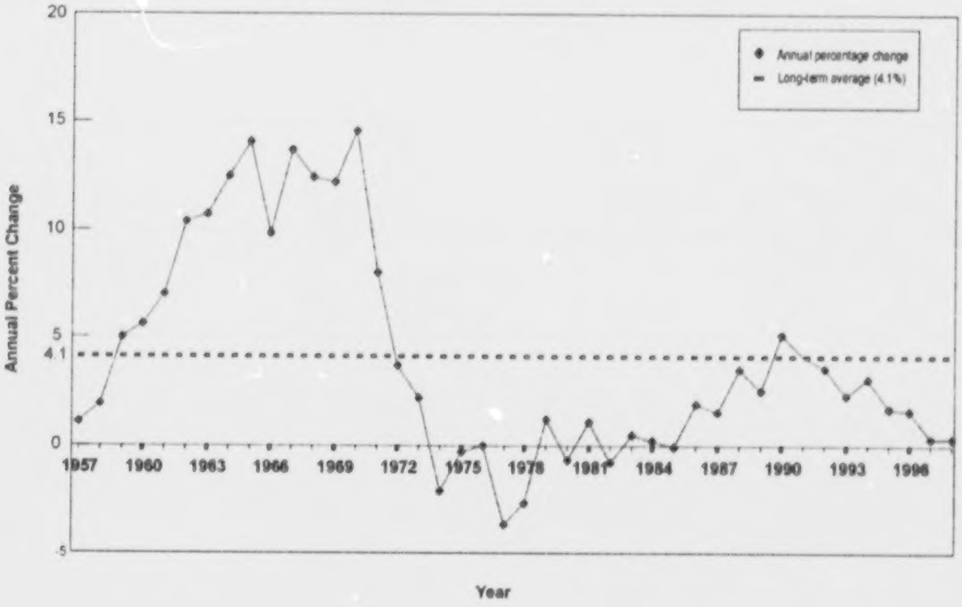
[5] Source of data for 5-year comparisons (1993-98) in this report is the *Summary Report 1993: Doctorate Recipients from United States Universities.* National Research Council Washington, DC: National Academy Press, 1995. Source of data for 10-year comparisons (1988-98) is *Summary Report 1988: Doctorate Recipients from United States Universities.* National Research Council. Washington, DC: National Academy Press. 1989.

Figure 1. Doctorates awarded by U.S. colleges and universities, 1957-1998



See Table 1 Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Figure 2. Annual percent change in doctorates awarded by U.S. colleges and universities, 1957-1998



See Table 1 Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates living in a marriage-like relationship.[6] A decade ago the corresponding figures were higher percentages male, white, and U.S. citizenship; smaller percentage married; and the same approximate age at doctorate award. (See tables 7, 8, 11, A-3a and *Summary Report 1988.*[7])

Doctorate-granting Institutions, Doctorates per Institution, and Geographical Distribution

During the 1998 academic year, 387 colleges and universities in the United States and Puerto Rico awarded at least one research doctorate, as compared with 382 institutions granting doctorates in the 1997 academic year. The number of institutions increased steadily from the early 1960s (174 in 1961) until 1988 but has remained relatively level for the last few years. (See table 2.)

The mean number of doctorates awarded per institution in 1998 was 110, and the median was 45. As the difference between mean and median suggests, a relatively small number of institutions grant a disproportionately large number of doctorates. For example, only 115 institutions awarded more than the mean in 1998, but these 115 institutions granted an average of 296 doctorates each, accounting for 79.8 percent of all Ph.D.s earned in that 12-month period. The remaining 272 institutions awarded 32 doctorates on average in 1998. In terms of quartiles, the top 18 institutions accounted for 25 percent of all doctorates, the second quartile contained the next 29, the third quartile included 52 universities, and the remaining 288 were in the fourth quartile.[8]

The University of Texas at Austin granted 834 doctorates, or just under 2 percent of all doctorates awarded—the most Ph.D.s of any U.S. institution. The University of Wisconsin-Madison (760) and the University of California-Berkeley (748) were second and third. These same three universities, in the same order, also were the top doctorate-degree producers in 1997. The University of Minnesota (Twin Cities), University of Illinois (Champaign-Urbana), Ohio State University, University of Michigan, and UCLA round out the list of the top eight doctorate producers in recent years. Generally, either Harvard or Stanford follows the top eight in granting the next largest number of doctorates, the most for a private institution. In 1998 the leading 10 universities awarded 16.2 percent of all doctorates. (See table 3 and appendix table A-7.) Ten years ago the largest number of doctorates was awarded by the University of California-Berkeley (758), and the top 10 institutions together granted 17.7 percent of the 33,456 doctorates awarded.

With respect to broad field, the University of California-Berkeley awarded the most doctorates (156) in the physical sciences. MIT granted the most engineering doctorates (229), while the University of Wisconsin-Madison led all universities in granting doctorates in the life sciences (185). Nova Southeastern University awarded the most doctorates in both the social sciences (149) and education (298). Nova also granted the largest number of degrees in the smaller, heterogeneous, "professional/other" category (58). The University of Texas-Austin was the leading granter of humanities doctorates (151). (See table 3 for the top 20 ranked institutions in each broad field.)

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[6] Based only on the number with known status.

[7] See note 5 above.

[8] Calculations derived from appendix table A-7.

Doctorates granted by the top 10 institutions are concentrated in certain broad field areas. While these institutions accounted for 16.2 percent of all doctorates, they granted 19.1 percent of all Ph.D.s in the physical sciences, 27.7 percent in engineering, 18.1 percent in life sciences, 22.9 percent in humanities, and 21.0 percent in education. The lowest concentration was in the social sciences, in which the top 10 universities produced 15.4 percent of the doctorates.

For their doctoral studies, 68.4 percent of all new Ph.D.s attended public universities (for U.S. citizens that figure was 68.5 percent); 59.4 percent of the 1998 recipients who were U.S. citizens had earned their undergraduate degrees at public institutions.[9]

The 89 institutions in the Carnegie Research I classification[10] awarded 67.6 percent of all doctorates in 1998; the 37 Research II universities granted 11.2 percent of all Ph.D.s. In 1998, 10.5 percent of new Ph.D.s received their degrees at Doctoral I institutions; for Doctoral II institutions, the figure was 4.8 percent. The set of "other" Carnegie institutions awarded 5.8 percent of all doctoral degrees in 1998. (See figure 3.)

California universities awarded 4,731 doctorates (11 percent of the total). New York institutions granted the next highest number of doctorates (3,784), followed by institutions in Texas (2,736), Illinois (2,260), and Pennsylvania (2,234). These five states accounted for 36.9 percent of all doctorates awarded in 1998. Appendix table A-7 shows the aggregate and subfield distribution of 1998 doctorates by individual institution and state. Ten years ago, the top five states (with Massachusetts in place of Pennsylvania) accounted for 39.9 percent of the 33,456 doctorates awarded that year.

Doctorates by Broad Field

The SED classifies research doctoral degrees into some 290 fields of specialization (these are listed on pp. 8 and 9 of the questionnaire included in appendix D). For presentation purposes here, these are grouped into seven broad fields: physical sciences,[11] engineering, life sciences,[12] social sciences (including psychology), humanities, education, and a heterogeneous group of professional and other fields. The latter includes mainly business-related and public administration doctorates; and communications research, law, social work, theology, and library science. Information about the levels and trends by these broad fields of study is of particular interest to Federal sponsors of doctoral research, academic administrators, and professional

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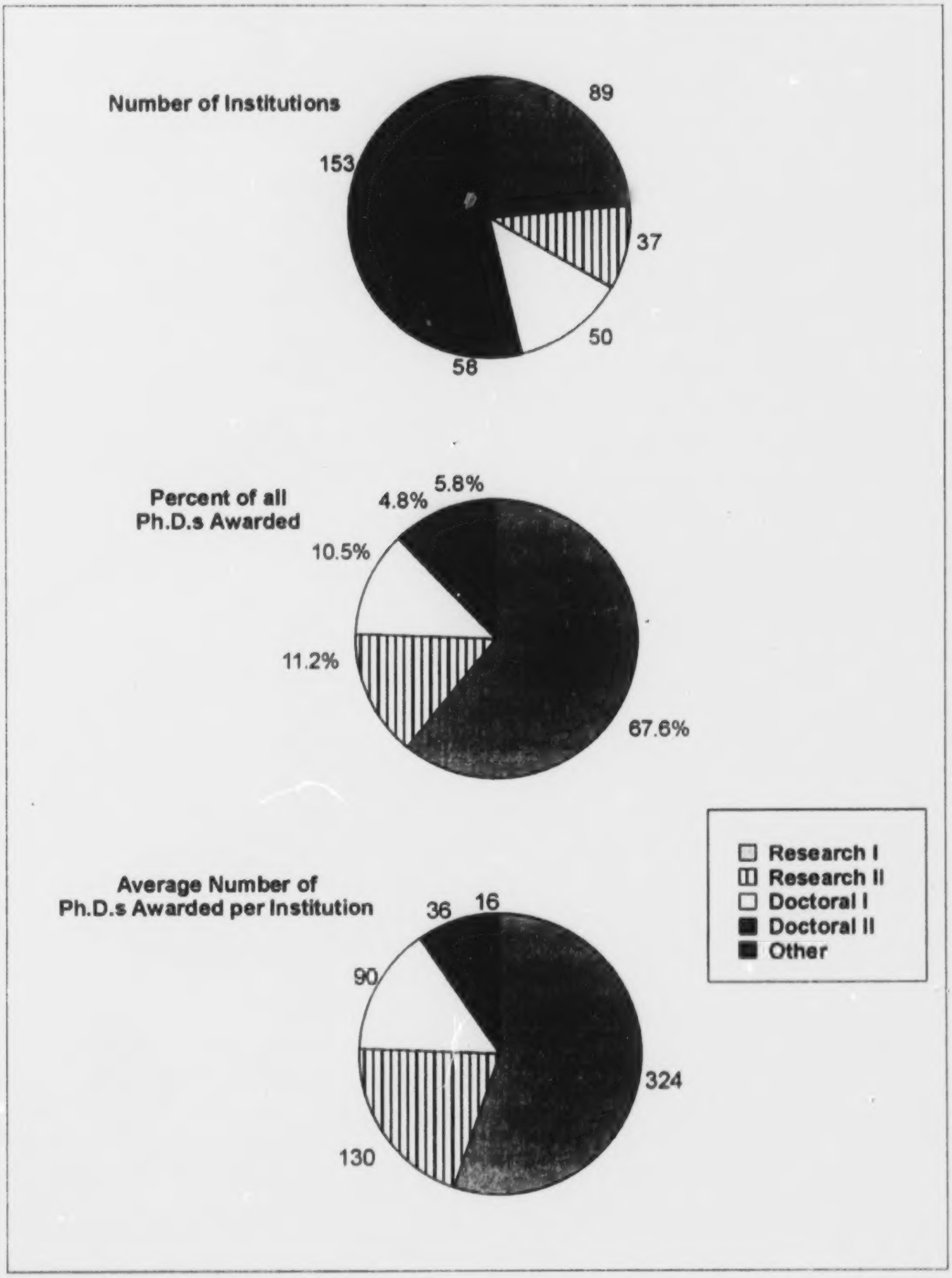
[9] Public-private institution comparisons at the undergraduate level would be meaningless for non-U.S. citizens, who overwhelmingly enrolled in baccalaureate programs outside the United States.

[10] See table 4 for a brief description of the Carnegie Foundation classification system and distributions.

[11] The physical sciences include mathematics and computer sciences, as well as the traditional physical sciences.

[12] The life sciences encompass biological, agricultural, and medical sciences.

Figure 3. Distribution of research-doctorate-granting institutions and doctorates by Carnegie classification, 1998



See Table 4: Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates associations, among others. These groups need such specialized data to make informed policy decisions influencing graduate education and the nation's labor force.

All seven broad fields show substantial gains in the number of doctorates for the 10-year interval of 1988–98. (See figures 4 and 5.) Although the overall rate of growth in Ph.D.s was 27.4 percent for that period, doctorates granted in the humanities field increased 54.7 percent (or 1,944 more doctorates), followed by engineering with a 41.4 percent increase (1,732) and the life sciences with a 38.5 percent increase (2,376). For the previous five-year interval (1993 -98), doctorates awarded in five of the broad fields increased but in education and the professional/other category, the number declined.

The four broad fields that together constitute "sciences and engineering (S&E)"—physical, life, and social sciences and engineering —showed a 1.9 percent annual increase in doctorates granted, an 8.2 percent gain over the past five years, and 31.9 percent more than were awarded in 1988. In 1998, these four fields yielded 66.2 percent of all Ph.D.s, a figure that has stayed fairly constant for the last four decades (it was 64.1 percent in 1968, 57.3 percent in 1978, and 64.0 percent in 1988).[13]

Thirty years ago, in 1968, more doctorates were awarded in physical sciences than in any other broad field, with education second. In 1978 and 1988, the largest number of doctorates were granted in education, with social sciences second in 1978 and life sciences second in 1988. For the 1998 academic year, life sciences was the broad field in which the most doctorates were awarded, followed by social sciences. (See figures 4, 5, and 6.)

In terms of groupings familiar to some graduate school deans—whose purview as academic administrators may not extend to engineering, education, and professional programs—65.3 percent of the 42,683 doctorates awarded in 1998 were in the "arts and sciences," a figure that has hovered around 65 percent for the last 40 years. Between 1997 and 1998, the physical and life sciences showed a 3.3 percent increase, compared with a 2.2 percent gain for the humanities and social sciences. Over 5- and 10-year intervals, the physical and life sciences showed gains of 10.0 percent and 33.2 percent versus 14.0 percent and 34.7 percent for the humanities and social sciences.

The absolute numbers and comparable percentage changes over the last decade for 25 selected subfields are given in table 6. In all instances the number of doctorates grew, although the amount of growth in these individual academic areas varied widely: from lows of 1.9 percent in the agricultural sciences and 9.9 percent in chemistry to a more than doubling in the neurosciences (155.9 percent) and molecular biology (104.7 percent). Within all four of the major engineering subfields—chemical, civil, electrical, and mechanical—the number of doctorates awarded also increased. Chemical engineering had the smallest percentage increase

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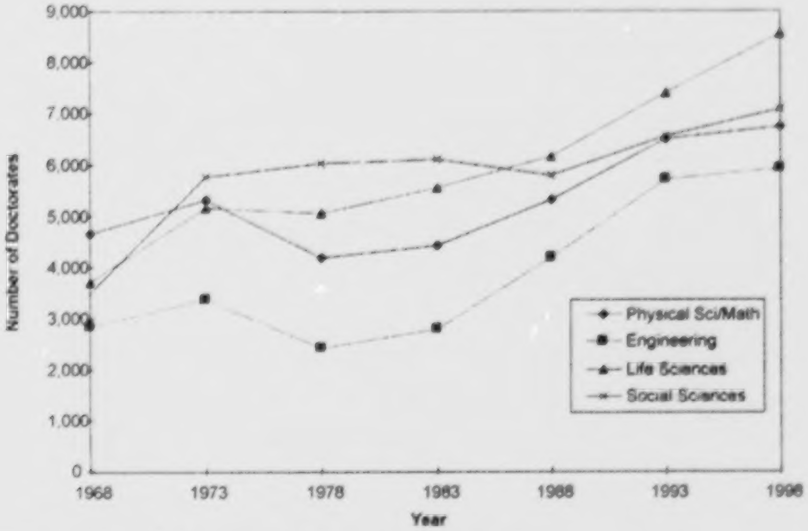
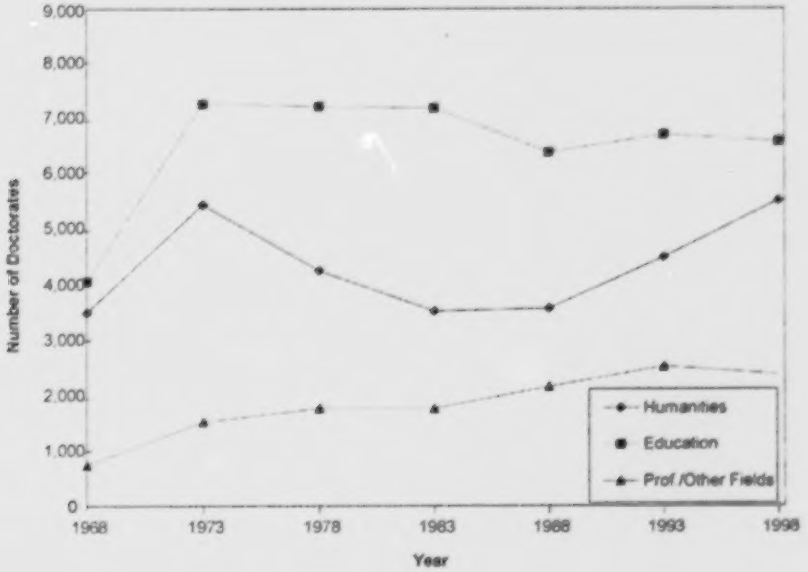
[13] Source of data for 20-year comparisons (1978-98) in this report is the *Summary Report 1978: Doctorate Recipients from United States Universities.* National Research Council Washington, DC: National Academy Press, 1979. Source of data for 30-year comparisons (1968-98) is *Summary Report 1968: Doctorate Recipients from United States Universities.* National Research Council., Office of Scientific Personnel. Washington, DC: National Academy of Sciences, 1969.

Figure 4. Science and engineering doctorates awarded by broad field, 1968-1998



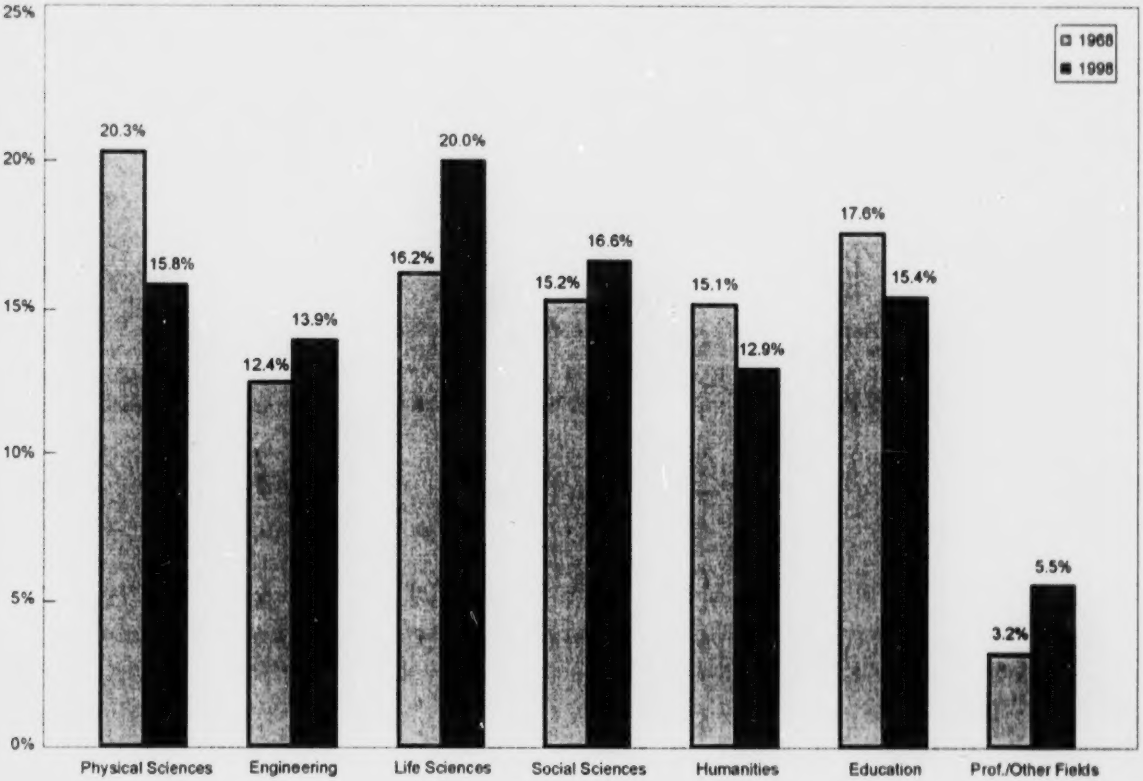
See Table 5. Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Figure 5. Humanities, education, and professional/other doctorates awarded by broad field, 1968-1998



See Table 5. Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Figure 6. Distribution of doctorate recipients by broad field, 1968 and 1998



See Table 5

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

(6.7 percent) and electrical and mechanical engineering showed the largest gain (51.8 percent and 53.2 percent).

Doctorates by Sex

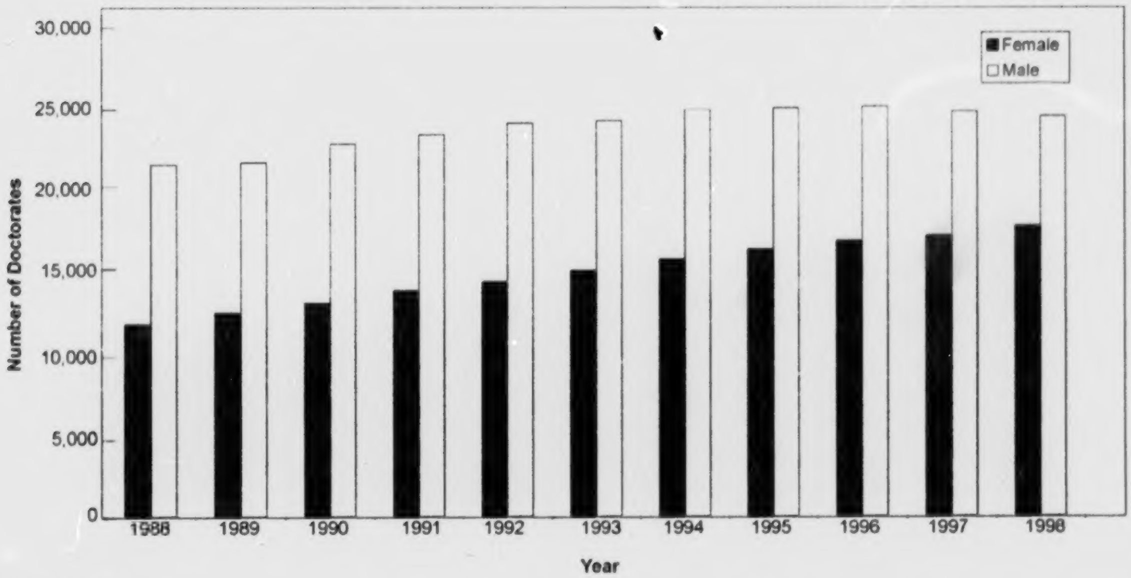
The aggregate percentage increase in doctorates earned between 1997 and 1998 (0.3 percent) is decidedly different when comparison is made by sex. In 1998, women received 17,856 Ph.D.s, the highest one-year total ever and a 1.4 percent gain over 1997. (See figure 7.) Females received 41.8 percent of all doctorate degrees granted, again the highest percentage ever; 1998 was the third consecutive year in which the representation of women was at least 40 percent. The absolute number of males earning doctorates declined for the second straight year—the 1998 total of 24,653 is 787 less than for 1996—and 1998 was the ninth consecutive year in which the overall male percentage declined. Over the last 40 years, from 1958 (when only 911 doctorates were awarded to women) to 1998, the rate of growth for male doctorates has averaged just under 3 percent annually; over that same interval the rate of growth for female doctorates has been 7.5 percent per year.

The same long-term trend of increased female representation holds true for U.S. citizens, permanent residents, and those in this country on temporary visas. Absolute numbers of doctorates earned by females in all three categories increased between 1997 and 1998, while the numbers fell for males in the corresponding categories. Among U.S. citizens, the total number of doctorates earned by men and women in 1998 is very close to population parity: 47.7 percent of all doctorates were awarded to women. Ten years ago the female U.S.-citizen proportion of doctorate recipients was 41.1 percent, and 20 years ago it was only 29.1 percent.

Over that same 20-year time frame, female permanent resident recipients increased steadily from 21.7 percent in 1978 to 38.0 percent in 1998. Of doctorate recipients holding temporary visas, only 25.6 percent in 1998 were women. In 1988 females holding temporary visas constituted only 17.1 percent of doctorate recipients, compared with 13.3 percent 20 years ago. (See figure 7 and appendix tables B-2b and B-2c.)

The increase in absolute numbers and in percentage terms for women occurred in virtually every broad field. In the physical sciences, the area with the second smallest representation of women (the fewest women are in engineering), female doctorate recipients increased by 11.0 percent. Men showed percentage increases in four of the seven broad fields, although only in education was the male increase greater than the increase for females.

Figure 7. Doctorate recipients by sex, 1988-1998

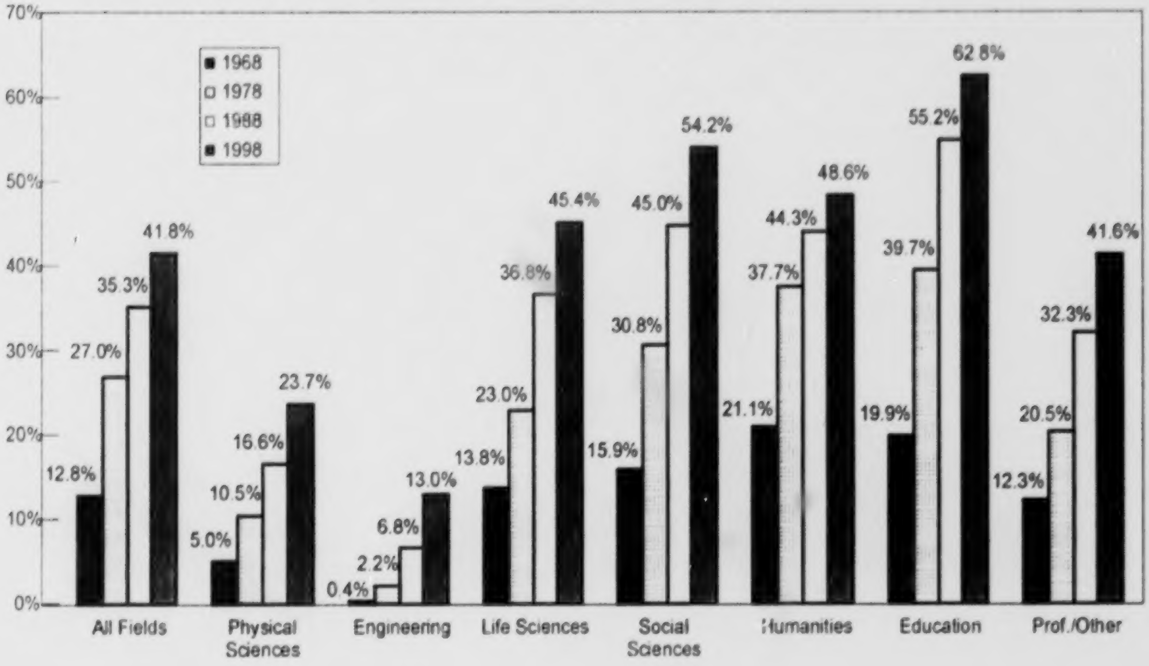


See Table 6

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

In spite of both recent gains and the longer term trend, the distribution of doctorates by sex across the major fields remains decidedly bi-modal. In 1998, women received just 18.8 percent of all doctorates in physical sciences and engineering combined; across the other five fields they were, on average, in the majority—51.7 percent for all five combined. (See figure 8.)

Figure 8. Female doctorate recipients by broad field, 1968, 1978, 1988, 1998



See Table 7

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Within the subfields, representation by sex varies widely. (See table 6.) For example, in the physical sciences field, women received 31.3 percent of chemistry doctorates in 1998 but only 17.0 percent in computer sciences; in the life sciences, females earned 67.1 percent of all Ph.D.s in the health sciences (and 96.4 percent in nursing alone) but only 39.0 percent in ecology; within the major social science disciplines, the proportion of female doctorate recipients ranged from 27.4 percent in economics to 66.9 percent in psychology; and in the humanities, women received 75.0 percent of all art history doctorates compared with 29.4 percent in philosophy. (See table 6 and appendix table A-1 for additional subfield distributions by sex.)

Doctorates by Race/Ethnicity

For U.S. citizens the aggregate number of minority doctorate recipients rose between 1997 and 1998, from 3,845 to 4,014 (or by 4.4 percent).[14] This number is 35.8 percent higher than 5 years ago, 89.3 percent higher than 10 years ago, and more than double the 1978 figure (104.1 percent higher). If both U.S.-citizen and permanent-resident minority recipients are counted, the increases are 32.3 percent higher than 5 years ago, 94.1 percent higher than 10 years ago, and 111.2 percent higher than in 1978. These sizable increases are even more impressive when compared to the growth of doctorates earned by white U.S. citizens over the same period: Minority U.S. citizens received 2,047 more doctorates in 1998 than in 1978, while white U.S. citizens earned only 1,527 more. (See figures 9 and 10.)

While the overall rate of increase in doctorates between 1997 and 1998 was 0.3 percent, the number of doctorates decreased by 2.2 percent for U.S. citizens and permanent residents who were members of a racial or ethnic minority. However, that aggregate decline is misleading, as the percentage increased sizably for American Indians (13.9 percent), blacks (7.5 percent), and Hispanics (10.8 percent). The observed decline is due to a decrease in doctorates earned by Asian U.S. citizens (9.9 percent) and the even more pronounced decrease for permanent-resident Asians (14.4 percent).[15] (See appendix tables A-2 and B-2a as well as figure 9.)

Minority women earned 52.3 percent of Ph.D.s granted in 1998 to minority U.S. citizens. In three of the four groupings, female U.S. citizens earned slightly more than 50 percent of doctorates awarded to minorities—55.0 percent for American Indian women, 55.1 percent for Asian women, and 50.9 percent for Hispanic women. Black women, however, earned 64.6 percent of doctorates awarded to blacks. (See figure 11.)

Overall in 1998, 42.9 percent of doctorates awarded to U.S. citizens and permanent residents were granted in the three broad fields of physical sciences, engineering, and life sciences. However, 69.8 percent of Asians receiving doctorates earned them in those three fields, as did more than 75 percent of non-U.S. citizens on temporary visas, the majority of whom are from Asian nations. By contrast, blacks accounted for only 23.2 percent of the doctorates awarded in these three fields. One broad field—education—accounted for 40.7 percent of doctorates received by blacks. More American Indians also earned doctorates in education (26.5 percent) than in any other field. The social sciences were the most popular field for Hispanics—23.8 percent of all doctorates awarded to Hispanics were in the social sciences. (See figure 12.)

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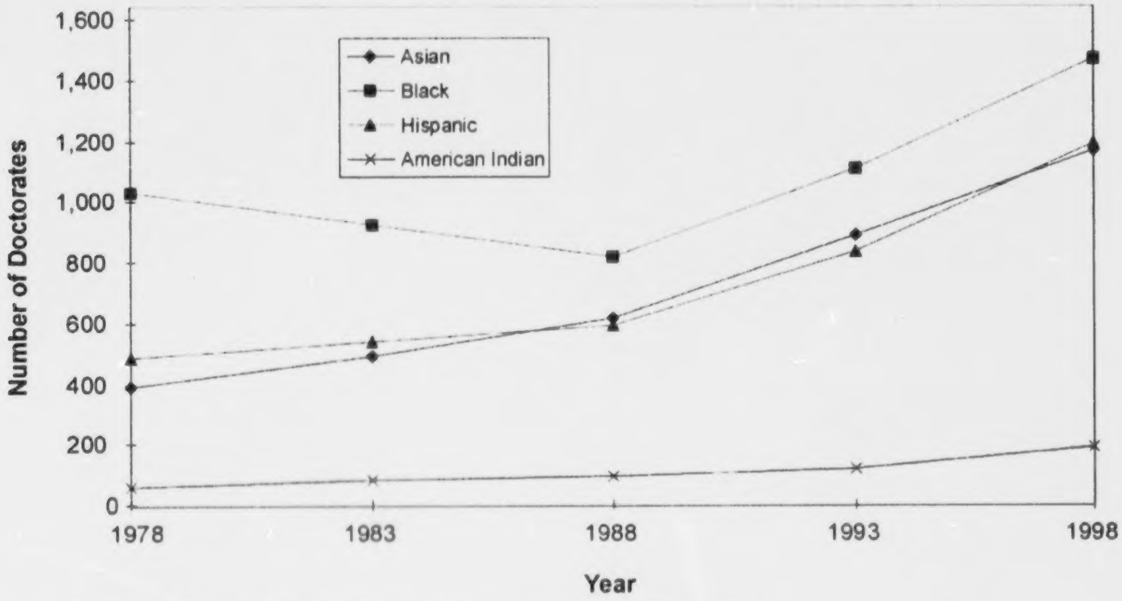
[14] The SED questionnaire asks respondents to classify themselves as Hispanic, American Indian or Alaskan Native, Asian or Pacific Islander, black, or white. In this report, references to Asians include Pacific Islanders, and references to American Indians include Alaskan Natives.

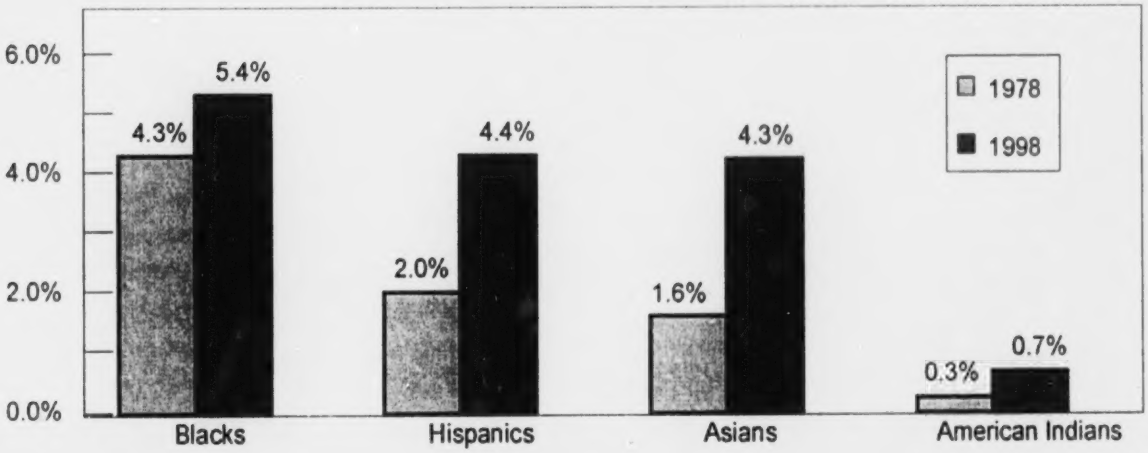
[15] More than 90 percent of blacks, Hispanics, and American Indians who earned doctorates are U.S. citizens, but only 42.9 percent of Asian doctorate recipients are U.S. citizens—the majority (57.1 percent) are permanent residents. Thus, when tracking race/ethnicity trends, one must distinguish between U.S. citizens and permanent residents.

Figure 9. Doctorates awarded to minority U.S. citizens by race/ethnicity, 1978-1998



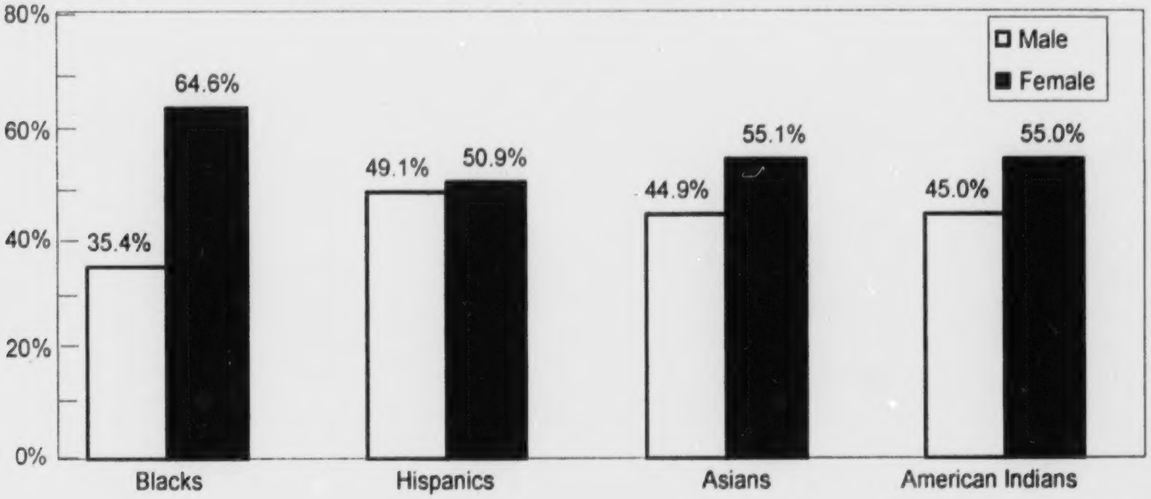
See Table 8 Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Figure 10. Percentages of doctorates earned by minority U.S. citizens, 1978 and 1998



See Table 8 Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

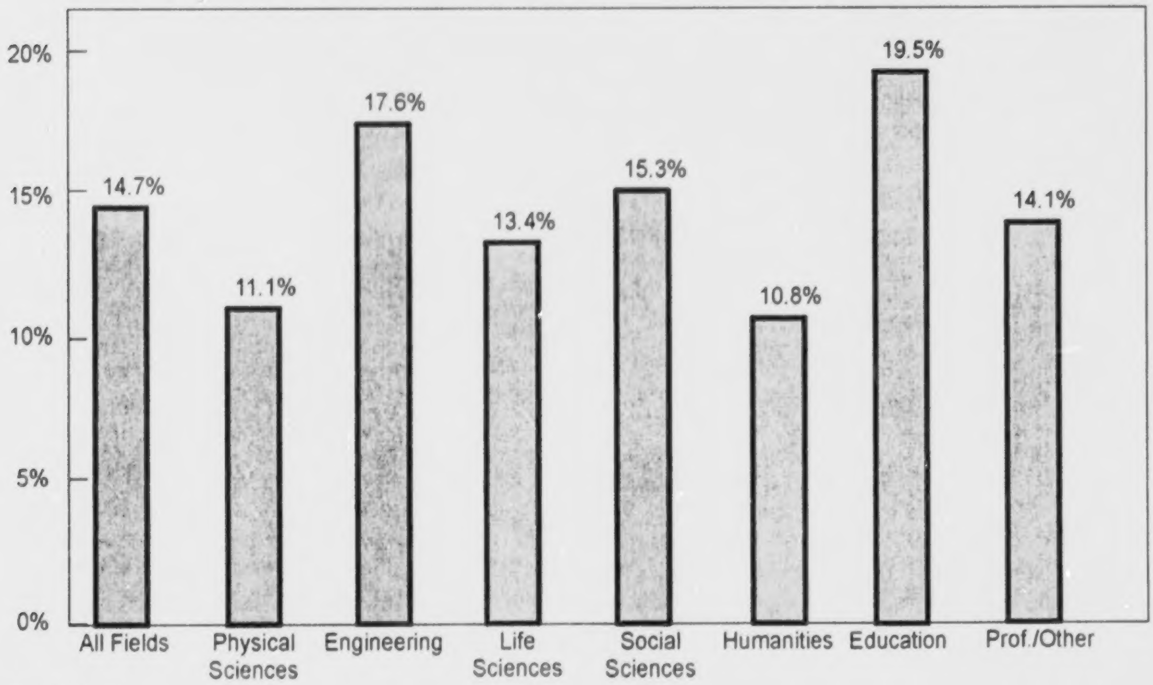
Figure 11. Distribution of doctorates earned by minority U.S. citizens by sex, 1998



Appendix Tables B-2b and B-2c

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Figure 12. Doctorates earned by minorities U.S. citizens by broad field, 1998



See Table 9

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Among U.S. citizens, Asian doctorate recipients increased between 1997 and 1998 only in the humanities; they declined in the other six broad field areas. Blacks showed increases in the physical sciences, social sciences, humanities, and education. The number of Hispanics receiving doctorates was larger in 1998 relative to 1997 in all four S&E fields and in education. The numbers for American Indians, while small, increased in all seven fields. By contrast, for white U.S. citizens, the total number of doctorates awarded between 1997 and 1998 increased in three fields—physical sciences, social sciences, and the humanities—and fell in the other four.

Table 10 lists the universities that awarded the most doctorates to each of the four minority groups over the last five years and the absolute number awarded. Three California institutions and two in Boston—Berkeley, UCLA, Stanford, Harvard, and MIT—granted the most Ph.D.s (18 percent) to Asian U.S. citizens over the 1993-98 time period. Nova Southeastern and Howard together granted 7.6 percent of all doctorates awarded to blacks in the last five years. Hispanics earned more doctorates at the University of Texas-Austin than at any other institution over this period. Ten universities—two in Texas, three in California, two in Puerto Rico, two in Arizona, and Harvard—awarded almost one-fourth (23 percent) of all doctorates to Hispanics. Oklahoma and Oklahoma State Universities led all institutions in the number of doctorates awarded to American Indians.

The concentration of doctorates earned by U.S. minority students from these particular institutions is much higher than the concentration by entire population, citizenship, or broad field. Although the overall top 10 institutions awarded 16.2 percent of all doctorates (see appendix table A-7), the top 10 institutions in each racial/ethnic category accounted for 28.5 percent of Asian doctorate recipients, 41.0 percent of black recipients, 21.0 percent of Hispanic recipients, and 20.4 percent of American Indian recipients. (See table 10.)

Doctorates by Citizenship

Approximately one-fifth of all doctorates granted in 1998 were awarded to non-U.S. citizens in this country on temporary visas. In absolute numbers, this group earned 8,642 doctorates. (See appendix table A-4.) However, of the 42,683 total doctorates awarded, citizenship is unknown in 3,127 cases. Consequently, the 8,642 figure is 20.2 percent of all doctorates and 21.8 percent of doctorate recipients whose citizenship is known.

If all of the "unknowns" were on temporary visas, which is highly unlikely, the percentage would rise to 27.6 percent. These three percentages bound the true representation of international students earning doctorates at U.S. institutions. The corresponding percentages were similar in 1997: 19.9 percent of all doctorate recipients, 21.6 percent of recipients of known citizenship status, and 27.5 percent of all recipients assuming all unknowns were on temporary visas. Ten years ago, these percentages were 18.5 percent, 19.9 percent, and 25.6 percent.

The trend over the last decade is consistent—the percentage of non-U.S. citizens earning doctorates from U.S. universities has inched up modestly. By contrast, in the decade before (1978-88), the increase in international doctoral students was much larger. For 1978 those same percentage bounds ranged from 11.1 percent to 13.7 percent, or about half of the 1998 figures.

Stated another way, while the number of U.S. citizens receiving doctorates in 1998 was approximately 3,000 higher than the corresponding total in 1978, the number of doctorates awarded to students on temporary visas in 1998 was more than 5,000 higher than 20 years earlier. (See table 11.)

Permanent U.S. residents (that is, non-U.S. citizens on permanent visas, or holding a "green card") have also increased in absolute and relative terms among the doctorate population. In 1978 they represented 4.5 percent of all doctorate recipients with known citizenship; in 1988 that percentage was 5.2 percent, and in 1998 it was 6.8 percent.

Although temporary visa holders were 21.8 percent of doctorate recipients whose citizenship was known, their percentages by broad field varied considerably. For example, these non-U.S. citizens earned 44.2 percent of all engineering doctorates, 32.6 percent of the physical sciences doctorates, and 24.4 percent of the life sciences doctorates. (See table 11 and appendix table A-2.) For the S&E fields as a whole, non-U.S. citizens made up 27.9 percent of the doctorate population. Viewed from a different perspective, the numbers indicate that 27.7 percent of all doctorate recipients on temporary visas earned their degrees in engineering, followed by 23.6 percent earning doctorates in the physical sciences and 22.5 percent in life sciences; 84.4 percent of all doctorates granted to non-U.S. citizens on temporary visas were earned in S&E fields.

The People's Republic of China continues to outdistance other nations as the country of origin for non-U.S.-citizen doctorate recipients. Fully 6 percent, or 2,571, of all doctorate recipients in 1998 were citizens of China. India was second (with 1,259, or just under 3 percent), followed by Taiwan, Korea, and Canada. Fifteen percent of all doctorate recipients were citizens of these five countries, and they constituted more than 50 percent of all non-U.S. citizens receiving doctorates. The top 30 countries of origin of doctorate recipients who were non-U.S. citizens on temporary visas in 1998 are listed in table 12.

Table 13 lists the institutions awarding the largest number of doctorates to non-U.S. citizens, with the University of Texas-Austin granting the highest number (249). In percentage terms—that is, relative to the total number of doctorates awarded—the New Jersey Institute of Technology leads all institutions. (See table 14.)

Doctorates by Parental Education Background

In addition to the distribution of doctorate recipients by sex, race/ethnicity, and citizenship, the SED categorizes new Ph.D. recipients by family and personal background: geographic origins (see a discussion of this topic in the section on postgraduate plans), marital status and dependents, disability status, and the level of educational attainment by recipients' parents. Only the last is discussed in this section.

In 1998, of doctorate recipients as a whole, 28.3 percent came from families in which the father had a high school education or less; for 37.1 percent of recipients, the mother had a high school education or less. More than 40 percent (40.3) of the fathers of doctorate recipients had an advanced degree,[16] compared with 27.9 percent of the mothers. In 23.4 percent of the households, both parents held advanced degrees, but in a comparable number of families—23.0 percent—both the father and mother had high school education or less. (These percentages and all of the discussions that follow are based on data from table 15.)

These distributions vary widely by citizenship. For example, the percentage of doctorate recipients who had fathers and/or mothers with a high school education or less is lowest for U.S. citizens and highest for students holding temporary visas. As might be expected, the opposite is true for families in which parents held advanced degrees—U.S. citizen students had the highest percentage of parents holding advanced degrees and students studying on temporary visas had the lowest percentage.

Comparing by race/ethnicity, white doctorate recipients had the lowest percentages of fathers (27.0 percent) and mothers (34.3 percent) with a high school education. Black doctorate recipients had the highest percentage of fathers with a high school diploma or less (53.1 percent). Hispanics (52.6 percent) and blacks (51.9 percent) showed the highest percentages of mothers with a high school diploma or less.

Male and female doctorate recipients come from families in which the parents had similar educational backgrounds. For the families of male doctorate recipients, 29.0 percent of the fathers had a high school education or less, whereas 39.4 percent of the fathers held advanced degrees. For female Ph.D.s, those percentages are 27.5 percent having fathers with a high school education or less and 40.9 percent of fathers holding advanced degrees. Slightly more of the mothers of female doctorate recipients, as compared to mothers of male Ph.D.s, held advanced degrees (28.9 percent versus 26.7 percent) and fewer of the mothers had high school education or less (34.5 percent versus 39.2 percent).

The educational attainment of parents differs among students in the various broad fields. Doctoral recipients in the humanities and social sciences had the highest percentage of fathers with advanced degrees (46.5 percent and 45.7 percent), while doctorate recipients in the field of education had the lowest percentage of fathers with advanced degrees (29.1 percent). The distributions rank in the same order for mothers of recent Ph.D.s.

Time to Degree

The median 1998 doctorate recipient graduated from high school in 1980, at age 18, was about 34 (33.7) years of age when receiving his or her doctoral degree, and had been enrolled on a full-time basis for 6 years in the doctoral program. Women were, on average, about 18 months older than their male counterparts (34.8 years of age versus 33.1 years for males). While two-thirds (67.9 percent) of recent Ph.D.s received their high school diploma at 18 years of age, 3.8 percent were 16 years old or younger, and 2.4 percent were at least 20 years old.

The amount of time taken by doctoral students to earn their degrees can be expressed in several ways. The survey collects data on three statistics in particular: (1) the elapsed time between receipt of the baccalaureate and conferring of the doctorate; (2) the number of years actually registered in a doctoral program; and (3) the age at which the doctorate was awarded. None of these "clock times" is necessarily an accurate measure of the time and effort required to complete a doctorate, for each measure can be affected by such factors as the job markets for new doctorates, child care responsibilities, or requirements governing access to loans (and the repayment schedule) and health insurance through the university. Nevertheless, taken together, these three offer a complementary picture of the path and process of doctoral study. (Tables 16, 17, and 18 and figures 13 and 14 provide the data and graphical illustrations for the discussion on time to degree below, both for 1998 levels and longitudinal comparisons.)

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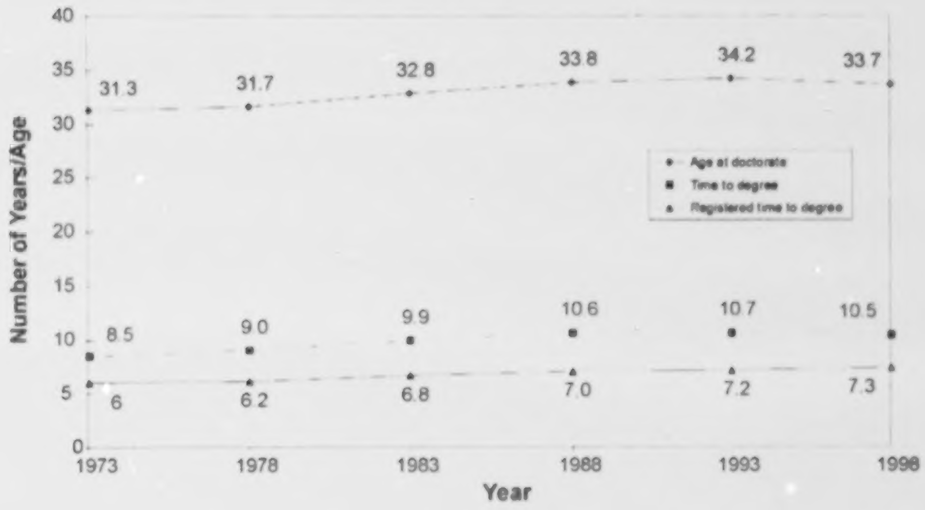
[16] Advanced degree is defined as a master's degree, professional degree, or doctorate.

Figure 13. Median number of years to doctorate from baccalaureate award and age at doctorate, 1973-1998

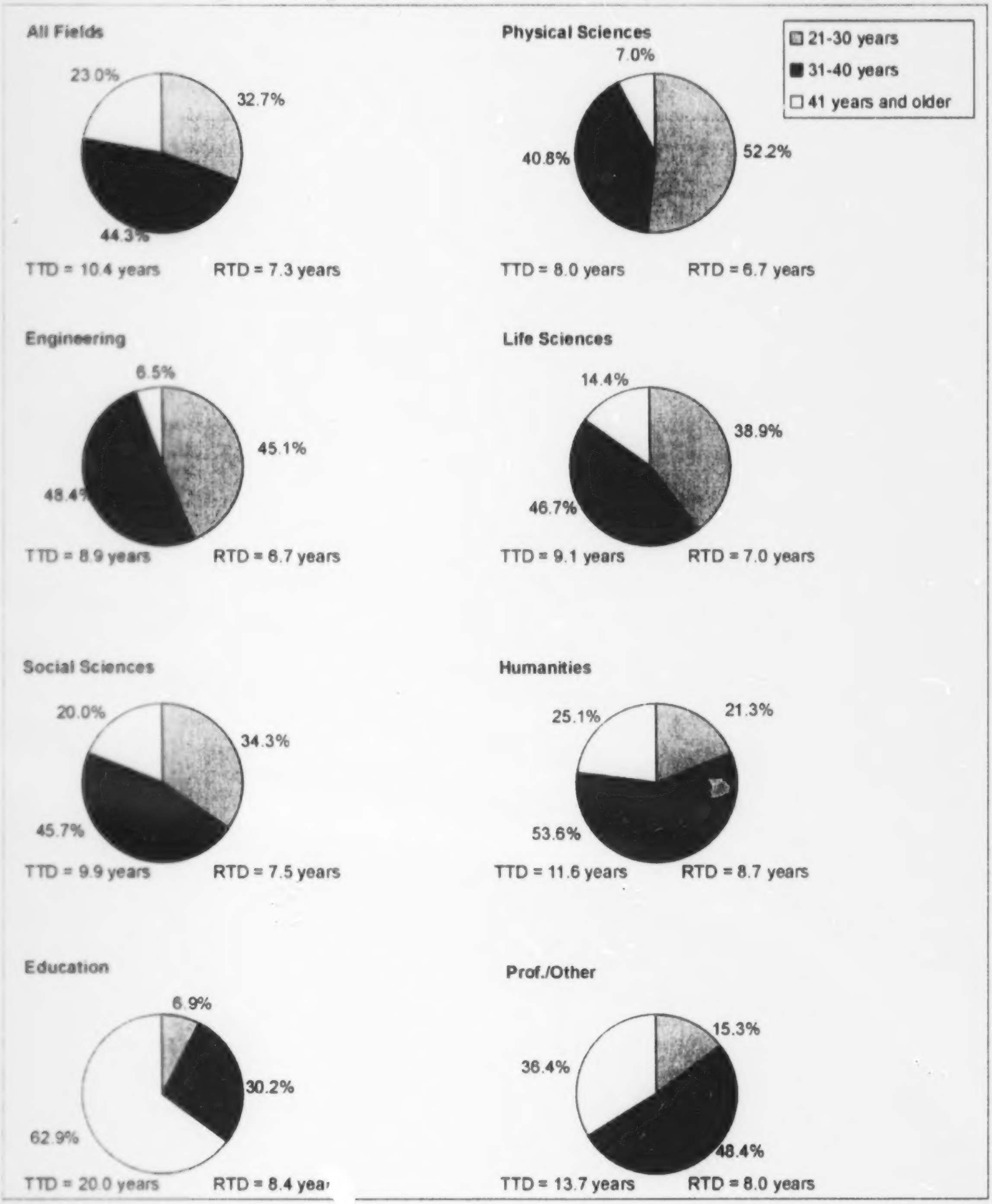


See Table 16

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Doctorate recipients in the physical sciences had the shortest total time to degree (8.0 years) for students in any of the seven broad fields of study, with engineering Ph.D.s second (8.9 years); both fields had the lowest registered time (6.7 years). Within the general arts and sciences areas, humanities students took the longest median time to earn their doctorates (11.6 years), and they were registered for the longest period as well (8.7 years). Overall, education doctorate recipients had the longest average time to degree (20.0 years), although they were actually registered in their doctoral program for less than half of that time (8.4 years). (See figures 13 and 14.)

Figure 14. Age distribution at doctorate by broad field of study



See Table 18

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

For 1998 doctoral recipients, the median number of years from the baccalaureate to the Ph.D. was 10.4 years (compared with 10.5 years for the 1997 doctoral cohort and 10.8 years in 1996). The registered time to degree was 7.3 years; it was also 7.3 years in 1997 and was 7.2 years in 1996. Because males and females, U.S. citizens and non-citizens, and members of various ethnic/racial groups are not distributed in the same proportions across academic disciplines, total and registered times can vary by sex, race/ethnicity and citizenship.

For example, males are more likely to be in the physical sciences, engineering, and life sciences, where both total and registered times to degree are lower than in other areas; females are overrepresented in the social sciences, humanities, and education, where both time-to-degree medians are higher. The aggregate difference in total time to degree (9.9 years for males versus 11.3 years for females) or registered time to degree (7.2 years for men versus 7.6 years for women) is largely attributed to the distributions by sex across these fields of study; within a specific field, median times are higher for women in some areas and lower in others.

Distributions by actual age at receipt of the doctorate are consistent with the other two time-to-degree measures. For the physical sciences, engineering, and life sciences, the modal age grouping is 26-30 years of age; for the social sciences and humanities, it is 31-35 years; and for education, it is the open-ended "over 45 years" category. (See table 18 and figure 14.)

Overall, non-U.S. citizens holding temporary visas have shorter total and registered times to degree (9.5 years and 7.0 years) than do U.S. citizens or permanent residents. (See table 17.) Again, this is a function of the distributions by citizenship status across the various fields. Because of their disproportionate representation in the S&E fields, non-U.S. citizens holding temporary visas on average complete their degrees when they are about two years younger than U.S. citizens. However, for each individual S&E category, total time to degree is shorter for U.S. citizens than for those on temporary visas; that pattern generally (but not universally) holds true for registered times as well.

Within the U.S citizen category, Asians have the shortest and blacks the longest total and registered times, but there are no systematic differences within field by race/ethnicity.

Financial Resources in Support of Doctoral Recipients

Nearly one-third (32.2 percent) of 1998 doctorate recipients reported that their "own resources" was the primary source of financial support for their doctoral programs. These resources include loans; personal savings; non-academic personal earnings during graduate school; and earnings or savings from spouse, significant other, or family. More than half (60.6 percent) reported their primary financial support as a program- or institution-based source: fellowship or dissertation grant (16.3 percent), teaching assistantship (17.8 percent), and research assistantship/traineeship (26.5 percent). Those reporting foreign government (2.5 percent), employer (3.1 percent), and other sources (1.6 percent) make up the remainder. (See figure 15.)

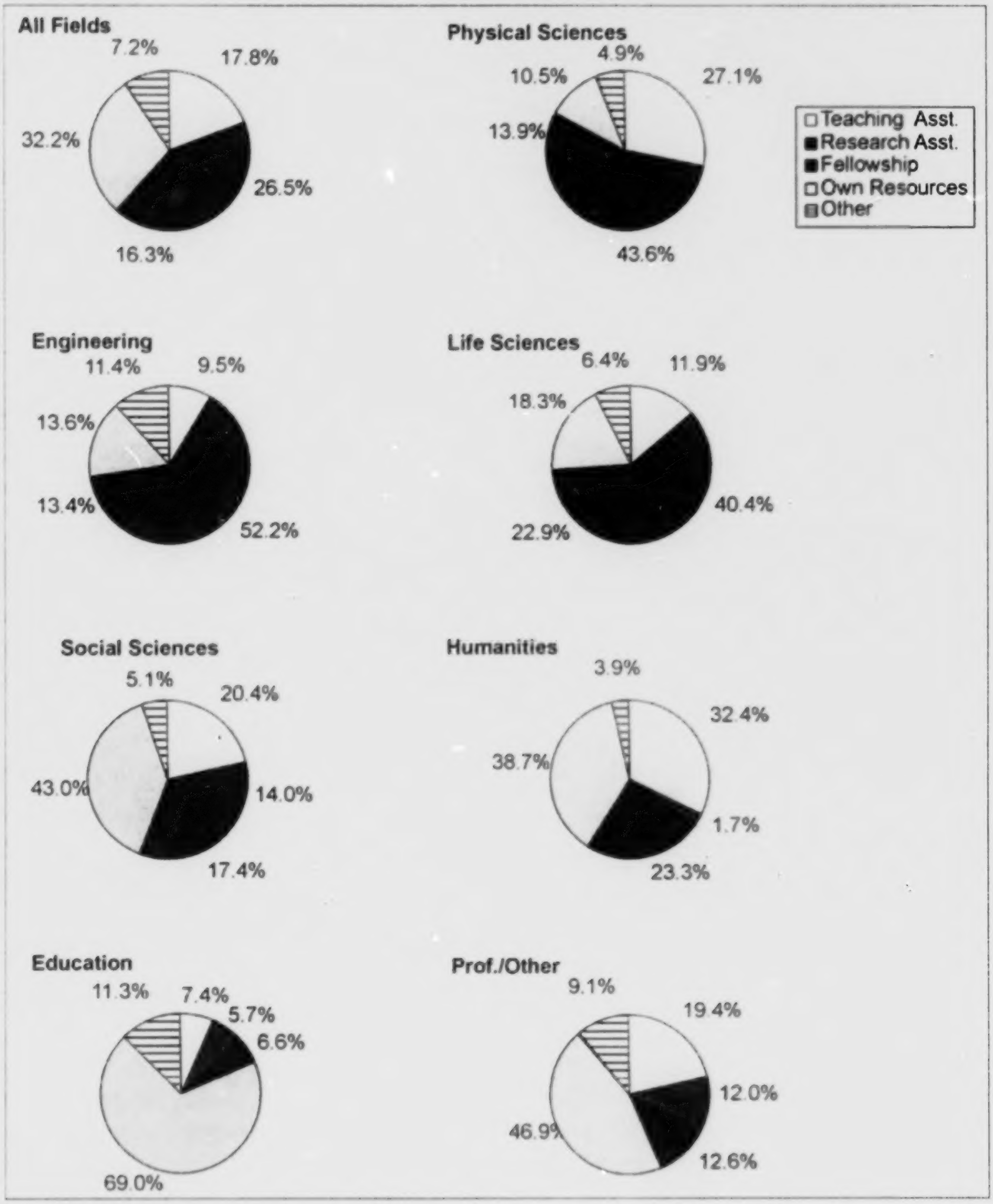
Overall, a higher percentage of women than men reported "own resources" as their primary financial source (41.1 percent versus 25.8 percent). U.S.-citizens (40.1 percent) were more likely than permanent residents (20.2 percent) or those on temporary visas (11.3 percent) to primarily rely on personal resources. Among the racial/ethnic groups (including whites) of U.S. citizens, the percentages citing personal resources as their primary support fell in a narrow band between 40 and 46 percent, except for Asians, for whom the percentage was 24.2 percent. However, the observed distributions are largely a function of field of study and underlying public policies, so comparisons at this level of aggregation must be further clarified.

For example, within the physical sciences only 10.4 percent of men and 10.7 percent of women listed their own funds as their primary source of support; both sexes had access to teaching and research assistantships and fellowships in almost identical proportions. By contrast, in the social sciences almost half of the female doctorate recipients (47.9 percent) and 37.3 percent of their male counterparts listed personal resources as the primary financial source; in the humanities the percentages were 38.9 percent females and 38.5 percent males. At 69.0 percent, education led all broad fields in students' own resources as the primary means of support.

International students are more heavily concentrated in fields where the majority of doctoral students traditionally receive institution- and/or program-based financial aid; consequently, it is not surprising that they rely less than do U.S. citizens on personal resources to support themselves in graduate school. However, within each of the seven broad fields, the percentage of U.S. citizens relying on their own financial resources exceeded that for their non-citizen counterparts, with permanent residents falling between in every instance. Three constraints influence the distribution of aid by citizenship status: (1) students on temporary visas are not eligible for many Federal or state sources of graduate assistance, such as USDA fellowships or traineeships from NIH and NSF; (2) international students, and in most cases their spouses, are not legally allowed to hold many forms of employment in the United States; and (3) non-U.S. citizens are excluded from most Federal loan programs.

These constraints are coupled with the requirement that approval of visa applications is assured only for international students who demonstrate full, guaranteed financial resources to

Figure 15. Primary sources of financial support for doctorate recipients, 1998



See Table 19

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

complete their studies in this country. Because these individuals are not allowed to draw from traditional sources of support (see above), universities provide more teaching and research assistantships and fellowships to their international students. Consequently, non-U.S. citizens are more likely to receive teaching and research assistantships while U.S. citizens receive more fellowship and grant support.

In the year immediately prior to being awarded the Ph.D., 46.4 percent of the 1998 doctorate recipients held a fellowship or assistantship at their graduate institution; 12.4 percent were employed elsewhere part time; and 7.6 percent classified themselves as unemployed. About one-third (33.6 percent) were employed full-time during that year, divided in equal proportions across business/industry, college/university faculty or non-faculty, elementary or secondary school teaching/administration, and other (or unspecified) occupations.[17]

Borrowing as a source of financial support for doctoral students is discussed in the special section on indebtedness.

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[17] Calculated from responses to questions A4 and A5 in the Survey. See appendix D.

Postgraduate Plans, Employment, and Location

The SED questionnaire includes a number of questions about the graduates' immediate plans for work or further study.[18] The responses provide a useful overview of the numbers planning to enter academic positions, government and industry, and postdoctoral positions of research and further study. Information is also collected on the main types of work activities (research, teaching, administration, and professional services to individuals) that the graduates anticipate in their new positions and the geographic locations where the new doctorates plan to work or study immediately following graduation.

The *Summary Report 1998* examines three aspects of postgraduation plans. First is whether the new Ph.D. has a definite or indefinite commitment for employment or postdoctoral position, as categorized by broad field of study, sex, citizenship, and race/ethnicity (tables 20 and 21). The second aspect examined is the distribution between career employment and postdoctorate research and study programs of doctorate recipients with definite plans. These data are also categorized by broad field of study (table 22), sex, citizenship, and race/ethnicity (table 23), as well as by visa status and anticipated location (foreign versus U.S.) for non-U.S. citizens (tables 24 and 25). The third aspect of postgraduate plans examined is the distribution of graduates across employment sectors by sex, race/ethnicity, and citizenship status (table 26).

Definite versus Indefinite Plans

Over two-thirds (69.6 percent) of all doctorate recipients reported having definite commitments for employment or postdoctoral study or research appointment. This percentage is consistent with the rates for recent years, but somewhat lower than the rates in the 1980s (table 20). With the notable exception of the humanities, the percentage of doctorate recipients with definite commitments varies little by broad field. In the humanities, only 58.8 percent have a definite commitment.

The percentage of recipients with definite commitments also differs little by demographic groups (table 21). For example, about 2 percent fewer women than men have definite plans; U.S. citizens are more likely to have definite commitments (71.7 percent) than individuals with permanent or temporary visas (62.5 percent); and among U.S. citizens and permanent residents,[19] whites are more likely to have definite plans (72.1 percent) than American Indians, blacks, Asians, or Hispanics.

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[18] None of the items in the postgraduation plans section of the questionnaire, except post-graduation location, is classified as being sufficiently "critical" to become the focus of missing data follow-ups. Consequently, the response rates to the items on postgraduation plans mirror the response rate of the questionnaire, minus a low rate of item nonresponse. For the 1998 survey, the overall response rate was 89.3 percent for the item asking if the respondent has definite plans for either career employment or further study. Among those with definite plans, 97.9 percent also provided information on whether they are planning on career employment or postdoctoral study. Among those with definite commitments for career employment, 96.3 percent provided information on their employment sector.

[19] With regard to postgraduate plans, the discussion and tables of the five race/ethnicity groupings include permanent residents along with U.S. citizens.

Career Employment versus Postdoctorates

Among the doctorate recipients reporting definite plans, a large majority (70.9 percent) indicated that they plan to enter career employment as opposed to further study within a postdoctoral research or teaching program (table 22). Postdoctorates are far more common among graduates in the physical sciences (46.0 percent) and the life sciences (61.2 percent) than in the other broad fields. The historical trend is generally away from immediate career employment in favor of postdoctoral programs.

Differences among demographic subgroups are evident in table 23. Men are slightly more likely than women to have definite plans for a postdoctorate appointment (30.4 percent versus 27.3 percent), but international students are much more likely than U.S. citizens to have a postdoctorate lined up. Among U.S. citizens and permanent residents, Asian students are more likely to plan on pursuing a postdoctorate; black and American Indian doctorate recipients are the least likely to report obtaining postdoctorates. These differences reflect the higher rate of postdoctorates available in the physical and life sciences and the relatively large concentrations of international and Asian American students in those fields.

Postdoctoral Location of Non-U.S. Citizens

As the number of international students earning research doctorates in the United States steadily increased over the past two decades, so has the tendency for those students to remain in the United States following graduation. The 1998 data show that 74.8 percent of all non-U.S. citizens receiving research doctorates have definite commitments to remain in the United States, up from 52.4 percent in 1978 (table 25). Temporary residents have the greatest increase. The areas having the highest concentrations of non-U.S. citizens who plan to stay in the United States are chemistry (87.8 percent), biology (83.0 percent), computer sciences (81.8 percent), and physics (80.6 percent). (See table 24.)

Employment Sectors in the United States

The most common employment destination of new doctorates who have definite commitments within the United States remains academe (50.0 percent of the respondent subpopulation).[20] (See table 26.) The next largest group (24.5 percent) has commitments to industry or some form of self-employment, and 8.2 percent plan to work for Federal, state, or local government. The historical trend is a slight reduction in academic endeavors and government employment, coupled with increases in the industry and the self-employment sectors.

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[20] Includes postdoctorates.

Among U.S. racial and ethnic groups, Asian doctorate recipients are more prone to go into industry or self-employment and less likely to immediately enter academe than those in the other racial and ethnic groups. Industry also is the main destination of non-U.S. citizens with definite plans to remain in the United States after graduation. (See table 26.)

Overall, 47.3 percent of doctorate recipients with definite employment plans indicated that they would hold academic appointments. Carnegie classification Research I universities awarded 67.6 percent of all doctorates and accounted for 67.8 percent of doctorate recipients who had firm academic employment.[21] Research II, Doctoral I, and Doctoral II institutions granted 11.2 percent, 10.5 percent, and 4.8 percent of doctorates; they contributed 13.3 percent, 11.2 percent, and 4.2 percent of new doctorates to academic appointments. Expressed another way, 48.3 percent of Research I university doctorates were being employed in academe, compared with 50.7 percent, 46.1 percent, and 38.6 percent of doctorate recipients from Research II, Doctoral I, and Doctoral II institutions. (See table 27.)

Doctorate recipients from Research I universities were slightly overrepresented, relative to their distribution among all new Ph.D.s, in industrial positions and underrepresented in "other" employment. Degree earners from Research II and Doctoral I institutions exhibited some underrepresentation in industry; those from Doctoral II institutions were overrepresented in "other" employment occupations. (See table 27.)

Migration

About three in ten (28.9 percent) of the 1998 doctorate recipients who graduated from a high school in one of the 50 United States, the District of Columbia, or Puerto Rico are returning to that same area upon completion of their Ph.D.s. (They may already have returned to that state or never left it to pursue their studies.) California (47.1 percent) and Texas (46.7 percent) have the highest immediate "return" or "stay" rates of all the states. Graduates of Puerto Rican high schools were most likely to return to or remain in Puerto Rico after completion of their doctoral studies (50.3 percent). Wyoming (5.6 percent), Vermont (7.8 percent), and New Hampshire (8.4 percent) had the lowest rates of return. (See table 28.)

Retention of the doctorate recipients within their "home" states varied widely across broad field of study. At one end of the spectrum, only 20.2 percent of those in the broad field of physical sciences intended to return (or already had returned) to the state in which they received their high school diploma. At the other end, 46.6 percent of doctorate recipients in the field of education indicated postgraduate plans in their home state. For the other five broad fields, the percentages of doctorate recipients returning home are tightly clustered around 25 percent. (See table 28.) These trends may reflect underlying job market conditions and the location of more specialized economic activity.

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[21] See table 4 for overall distribution of degrees by Carnegie classifications.

SPECIAL SECTION: Indebtedness

Introduction

Student indebtedness is a topic of great import for universities, public policy officials, and of course, doctoral students and their families. This special section focuses on the indebtedness of U.S.-citizen doctorate recipients.

Less attention is paid to non-U.S.- citizen students for two reasons: (1) an overwhelming percentage of international students did not complete their undergraduate education in the United States, so they were subject to a wider variety of, and for purposes of this report largely unknown, methods of financing during those years of study, and (2) non-U.S. citizens are not eligible to participate in the most frequently utilized loan programs—Stafford (formerly known as Guaranteed Student Loans [GSL]) and Perkins (formerly National Direct Student Loans [NDSL])—for graduate and professional study in this country. Furthermore, approval of visa applications requires that international students demonstrate adequate financial resources. Loans are not an allowable source of support, and many forms of employment are denied the student, as well as the spouse. Consequently, graduate financial aid to non-U.S. citizens is far more likely to be provided through university fellowships and teaching and research assistantships than through formal loan programs.

Our knowledge about the extent of borrowing by 1998 doctorate recipients to finance their education is derived from three questions in the survey instrument (see appendix D). On two questions, respondents note whether student loans were a source of financial support during graduate school and indicate which of the various financial aid alternatives were the primary and secondary sources. The discussion on financial aid found in the main report, as well as tables 29 and 30, place student loans in context.

The descriptions and analyses in this special section focus on the responses of doctorate recipients to the third question, which concerns whether the respondent's education financing is related to borrowing. This special section includes mapping the question's one-dimensional answer to the variables of sex, broad field of study, race/ethnicity, and institution type, among others. The exact wording of the question is: "When you receive your doctoral degree, how much money will you owe that is directly related to your undergraduate and/or graduate education (tuition and fees, living expenses and supplies, transportation to and from school)?"

Of the 1998 doctoral cohort, 49.1 percent incurred some debt over the course of their undergraduate and graduate studies. The median level of indebtedness upon completion of doctoral studies for those with outstanding loans was just over $15,000. (See the financial section in the main report and tables 29 and 30.)

This question (as asked currently and in recent years) makes no distinction between borrowing for undergraduate education as opposed to graduate studies, or even asks explicitly about borrowing to finance a doctoral program versus other graduate-level programs. Amounts that a doctoral student may have *borrowed* over the years and how much money is *still owed* are not specifically requested; that is, no information is asked about partial repayment of existing debt due to funds being available from the student's earnings or through spousal earnings, an inheritance, or a monetary gift.

Responses may be somewhat ambiguous, depending on how respondents perceive indebtedness "*directly* related to [their] undergraduate and/or graduate education," and how they treat borrowing from parents and/or other family members, credit card balances, and the interest due on their debt.[22]

Recent Historical and Current Debt Levels

In 1998, 43.8 percent of U.S. citizens receiving research doctorates reported no outstanding indebtedness upon graduation. That aggregate percentage has not changed significantly since five years ago, when the percentage was 44.6 percent. (See table 30 and *Summary Report 1993*.[23]) The percentage of respondents having educational indebtedness of less than $5,000 has fallen since 1993 (from 13.7 percent to 10.0 percent in 1998). However, the percentage reporting at least $30,000 in loans has steadily increased, from 6.7 percent five years ago to 13.3 percent in 1998.

By combining data for U.S. citizens, we see that in 1998, while 43.8 percent of doctorate recipients reported no outstanding loans, 27.3 percent owed $15,000 or less and 28.9 percent owed more than $15,000 (table 2-2).[24] The percentages for men and women are about the same, but as might be expected, the figures differ significantly by field of study. Those in the S&E fields have the lowest percentage of indebtedness in general and also the smallest percentage owing more than $15,000. For the social sciences and humanities, the opposite situation holds—more doctorate recipients in these fields than any others have some amount of indebtedness and the largest percentage owes more than $15,000 (table 2-2).

Doctorate recipients in the field of education display the highest level of being debt-free. Many education students pursue their doctorates on a part-time basis, funding their studies out of personal resources and support from their school districts. In addition, since the median age of doctorate recipients in the field of education is 45, the many years of intervening professional employment may be the primary reason those graduates show so little indebtedness. (See tables 18 and 2-2.)

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[22] Focus groups and cognitive interviews held to assist in possible revisions to the survey instrument revealed that respondents are likely to exclude borrowing from parents or other relatives unless a formal, explicit agreement with pre-determined payback provisions exists. Respondents do include credit card indebtedness if they consider the balances accruing as being for educational purposes. They do not think of their total loan liability as being principal plus interest, but only count the principal when describing their loans.

[23] National Research Council. 1995. *Summary Report 1993: Doctorate Recipients from United States Universities.* Washington, DC: National Academy Press.

[24] Overall, 50.9 percent of 1998 doctorate recipients reported no indebtedness. That figure has hovered between 50 and 53 percent for the last five years. See table 2-1 for 10-year comparisons.

The question on indebtedness was first included in the SED in 1987, and since then the wording and the response categories have remained exactly the same. *Summary Report 1988* states that of the 30,254 respondents to the debt question in 1988, over half (53 percent) reported finishing their doctoral programs free of debt related to their education and that the median level owed for those with accumulated educational debt was approximately $7,500. Ten years later, the percentage with no debt has decreased, and the average amount owed has increased. With an adjustment for inflation (which has reduced the real value of the indebtedness at a rate of about 3 percent per year), the median level owed is about 50 percent higher. Because students are incurring an increasing amount of debt (i.e., undergraduate plus graduate loans) along the path to their doctorate degrees, postgraduate career and personal decisions (such as family formation) may be affected.

Indebtedness by Race/Ethnicity

Among U.S. racial/ethnic minorities, Asians reported the lowest indebtedness levels—47.2 percent had no loans to repay upon receipt of the doctorate. For whites the corresponding figure was 45.2 percent; for blacks, Hispanics, and American Indians, approximately 30 percent graduated with no indebtedness. Among those who did have outstanding loan balances, whites (12.6 percent) and Asians (11.4 percent) had the lowest percentages of those owing more than $30,000; however, 22.4 percent of black doctorate recipients owed more than $30,000. (See table 30.)

Indebtedness by Source of Support and Postdoctoral Employment Sector

In 1998 the amount of indebtedness varied by the source of support for graduate studies. Of the U.S.-citizen respondents who listed their own resources as their primary source of financial support, 46.7 percent reported that they had no outstanding debt balance upon receipt of their doctorates. This finding is very likely an effect of the education doctorate recipients funding their educations out of their own resources and therefore graduating without any debt (see table19). Those who had been primarily supported by teaching or research assistantships, traineeships, or fellowships had fewer numbers graduating free of debt. However, 33.2 percent of the group supported by their own resources owed more than $15,000, one of the highest proportions of those in debt. (See table 2-4.)

Variation was also seen by postdoctoral plans for the 1998 cohort. U.S.-citizen doctorate recipients who plan to work in the academic sector reported the highest percentage of debt (58.3 percent) and also the highest proportion owing more than $15,000 (31.6 percent). Those intending to work in government had the least amount in educational loan balances outstanding and the lowest percentage of graduates owing more than $15,000. (See table 2-5.)

Indebtedness by Institutional Type

Few, if any, differences in indebtedness were observed by institutional type and classification. The percentages of U.S.-citizen doctorate recipients in public and private universities who report no indebtedness are almost the same (44.3 percent versus 42.8 percent), and the percentages from public and private institutions owing more than $15,000 are also about the same (28.0 percent versus 30.7 percent) (see table 2-2). This uniformity appears to hold true in a comparison by Carnegie classification, in which the percentage of new Ph.D.s having no debt ranges from 41.2 percent in Research II universities to 49.4 percent in Doctoral II institutions. (See table 2-2.)

Indebtedness by Citizenship

As shown in table 2-2 and noted above, 43.8 percent of doctorate recipients who are U.S. citizens reported no educational indebtedness; 27.3 percent expected to owe $15,000 or less upon receipt of the Ph.D.; and 28.9 percent incurred more than $15,000 in loans. For non-U.S. citizens—permanent residents plus those on temporary visas—the corresponding figures are 67.4 percent without education debt, 19.5 percent owing $15,000 or less, and 13.1 percent owing more than $15,000. (See table 2-3.) These differences hold across all seven broad fields of study and across institutional types and classifications.

The aggregate differential between U.S.-citizen and non-U.S.-citizen doctorate recipients who report being debt-free at graduation (43.8 percent versus 67.4 percent) remains approximately the same by institution type (Carnegie classification), by sex, and for five of the seven broad fields. The differential narrows only for the fields of education and professional/other. (See section in main report on Financial Resources in Support of Doctoral Programs for a discussion of possible causes of the difference in borrowing by citizenship status.)

Undergraduate versus Graduate Indebtedness

Currently the indebtedness question in the survey instrument does not differentiate between graduate and undergraduate loans.[25] However, one way to distinguish the different amounts is to segment the doctorate population by the type of institution—public or private—from which the Ph.D.s received their baccalaureate degrees.

U.S.-citizen doctorate recipients can be divided by baccalaureate institution into four populations: (1) those who received their B.A.s from public colleges or universities and also earned doctorates at public institutions; (2) those who were undergraduates at public institutions but earned their Ph.D.s from private universities; (3) those with B.A.s from private colleges or universities and doctorates from public institutions; and, (4) those who spent both their undergraduate and doctoral years at private institutions. Table 2-6 shows the doctorate population divided into those four mutually exclusive categories.

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[25] Revisions to the questionnaire for 2001 and beyond will include subparts to capture that distinction.

The data reveal that the level of indebtedness, including having no loans to repay, is independent of the type of institution that conferred the baccalaureate and doctorate. Very little variation exists across the three indebtedness levels by the four populations; regardless of enrollment pattern, approximately 42-45 percent of doctorate recipients had no outstanding loans; between 25 and 30 percent owe less than $15,000; and 25 to 30 percent owe more than $15,000. (See table 2-6.)

Indebtedness by Demographic Background

Borrowing by U.S.-citizen doctorate recipients appears to be independent of parents' levels of education, which serves in this analysis as a crude proxy for family income. (See table 2-7.) No discernable pattern is evident by the level of education reached by fathers, mothers, or both parents for members of the 1998 doctorate cohort having no indebtedness; the variation by parental education level is remarkably small. The same pattern holds for 1998 doctorate recipients at the other end of the spectrum—those owing more than $15,000.

The level of indebtedness, however, is not independent of marital status and number of dependents. For U.S. citizens, more married (47.5 percent) doctorate recipients (including those in a marriage-like relationship) reported having no outstanding education debt, as compared with those widowed, separated, or divorced (36.1 percent) and those who had never been married (38.1 percent). A spouse may well represent, on average, a source of support and a net financial asset to the doctorate recipient. (See table 2-8).

The effect of dependents on indebtedness is ambiguous.[26] The survey instrument (see appendix D) merely asks for the total number of those who receive at least one-half of their support from the respondent—it does not distinguish between spouse/partner and children; nor provide ages for the children. Neither does this question distinguish between doctorate recipients and their spouses providing over half of the financial resources for their households. If the spouse supported the household, the respondent may have answered zero dependents even though married. A comparison of the survey responses showed 62.9 percent of all U.S.-citizen doctorate recipients were married or living in a marriage-like relationship, but 55.0 percent reported having zero dependents.[27] Of these respondents with no dependents, 42.1 percent reported no indebtedness, as compared with 43.2 percent of degree earners with one dependent, 47.7 percent of recipients with two dependents, and 47.9 percent of those with three or more dependents. (See table 2-8.)

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[26] Improvements in the question wording and an additional question for the 2001 survey instrument should resolve or lessen the ambiguity on this point.

[27] Overall, 55.0 percent of recipients responded no dependents; 19.9 percent responded one dependent; 12.7 percent, two dependents; and 12.4 percent, three or more dependents.

DATA TABLES

1998 SURVEY OF EARNED DOCTORATES

Table 1. Doctorates awarded by U.S. colleges and universities, 1958-1998

Year	Number of Ph.D.s	Percent Change*	Year	Number of Ph.D.s	Percent Change*	Year	Number of Ph.D.s	Percent Change*
1957	8,611	1.1	1971	31,867	8.0	1985	31,297	-0.1
1958	8,773	1.9	1972	33,041	3.7	1986	31,902	1.9
1959	9,213	5.0	1973	33,755	2.2	1987	32,370	1.5
1960	9,733	5.6	1974	33,047	-2.1	1988	33,500	3.5
1961	10,413	7.0	1975	32,952	-0.3	1989	34,327	2.5
1962	11,500	10.4	1976	32,946	0.0	1990	36,067	5.1
1963	12,728	10.7	1977	31,716	-3.7	1991	37,534	4.1
1964	14,325	12.5	1978	30,875	-2.7	1992	38,890	3.6
1965	16,340	14.1	1979	31,239	1.2	1993	39,801	2.3
1966	17,949	9.8	1980	31,020	-0.7	1994	41,034	3.1
1967	20,403	13.7	1981	31,356	1.1	1995	41,743	1.7
1968	22,937	12.4	1982	31,111	-0.8	1996	42,414	1.7
1969	25,743	12.2	1983	31,281	0.5	1997	42,555	0.3
1970	29,498	14.6	1984	31,337	0.2	1998	42,683	0.3

*From previous year.
SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 2. Doctorates awarded by U.S. colleges and universities per institution, 1961-1998

Year	Number of Ph.D.s	Number of Institutions	Ph.D.s per Institution	Year	Number of Ph.D.s	Number of Institutions	Ph.D.s per Institution
1961	10,413	174	60	1980	31,020	325	95
1962	11,500	175	66	1981	31,356	328	96
1963	12,728	186	68	1982	31,111	333	93
1964	14,325	196	73	1983	31,281	337	93
1965	16,340	206	79	1984	31,337	336	93
1966	17,949	216	83	1985	31,297	342	92
1967	20,403	220	93	1986	31,902	345	92
1968	22,937	230	100	1987	32,370	353	92
1969	25,743	232	111	1988	33,500	355	94
1970	29,498	242	122	1989	34,327	360	95
1971	31,867	264	121	1990	36,067	358	101
1972	33,041	271	122	1991	37,534	367	102
1973	33,755	290	116	1992	38,890	370	105
1974	33,047	297	111	1993	39,801	375	106
1975	32,952	297	111	1994	41,034	377	109
1976	32,946	299	110	1995	41,743	384	109
1977	31,716	309	103	1996	42,415	392	108
1978	30,875	316	98	1997	42,555	382	111
1979	31,239	316	99	1998	42,683	387	110

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 3. Top 20 doctorate-granting institutions by broad field of doctorate, 1998

Institution	Number of Ph.D.s	Institution	Number of Ph.D.s
All Fields		**Physical Sciences***	
University of Texas-Austin	834	University of California-Berkley	156
University of Wisconsin-Madison	760	University of Wisconsin-Madison	139
University of California-Berkeley	748	University of Illinois-Urbana/Champaign	139
University of Minnesota-Twin Cities	724	Stanford University	138
University of Illinois-Urbana/Champaign	706	University of Texas-Austin	129
University of Michigan-Ann Arbor	687	Massachusetts Institute of Technology	129
Ohio State University-Main Campus	664	University of Michigan-Ann Arbor	122
University of California-Los Angeles	605	California Institute of Technology	116
Pennsylvania State University-Main Campus	597	Purdue University-Main Campus	108
Stanford University	595	Ohio State University-Main Campus	108
Harvard University	560	University of Minnesota-Twin Cities	106
Nova Southeastern University	543	University of California-Los Angeles	106
Texas A&M University-College Station	528	University of Washington	103
Purdue University-Main Campus	496	Harvard University	101
Massachusetts Institute of Technology	492	Cornell University-Endowed Colleges	101
University of Washington	478	University of Arizona	99
University of Maryland-College Park	476	Texas A&M University-College Station	99
Cornell University-Endowed Colleges	476	University of Maryland-College Park	97
Columbia University in the City of New York	462	University of North Carolina-Chapel Hill	92
University of Florida	457	University of Florida	90
Engineering		**Life Sciences**	
Massachusetts Institute of Technology	229	University of Wisconsin-Madison	185
Stanford University	177	University of California-Davis	175
Georgia Institute of Technology-Main Campus	175	University of Minnesota-Twin Cities	171
University of Illinois-Urbana/Champaign	175	Johns Hopkins University	161
University of Michigan-Ann Arbor	175	Ohio State University-Main Campus	158
University of Texas-Austin	160	Harvard University	152
University of California-Berkeley	153	University of California-Berkeley	141
Pennsylvania State University-Main Campus	144	University of Florida	141
Purdue University-Main Campus	139	Texas A&M University-College Station	137
Texas A&M University-College Station	115	Cornell University-Endowed Colleges	128
University of Wisconsin-Madison	109	University of Illinois-Urbana/Champaign	117
Carnegie Mellon University	99	University of North Carolina-Chapel Hill	116
University of Minnesota-Twin Cities	98	University of Georgia	115
University of Florida	97	University of Washington	113
Northwestern University	94	Michigan State University	111
North Carolina State University-Raleigh	94	Purdue University-Main Campus	111
Virginia Polytechnic Institute and State Univ.	93	University of Michigan-Ann Arbor	108
Ohio State University-Main Campus	89	Pennsylvania State University-Main Campus	103
Cornell University-Endowed Colleges	84	University of California-Los Angeles	96
University of Maryland-College Park	82	University of Texas-Austin	96

Table 3, Continued. Top 20 doctorate-granting institutions by broad field of doctorate, 1998

Institution	Number of Ph.D.s	Institution	Number of Ph.D.s
Social Sciences		**Humanities**	
Nova Southeastern University	149	University of Texas-Austin	151
University of Wisconsin-Madison	123	New York University	147
Columbia University in the City of New York	107	University of California-Berkeley	138
University of California-Berkeley	105	University of California-Los Angeles	130
University of Chicago	105	Harvard University	128
University of Michigan-Ann Arbor	104	Columbia University in the City of New York	124
Harvard University	101	Yale University	115
University of California-Los Angeles	99	University of Chicago	113
CUNY Graduate School and University	99	Indiana University-Bloomington	107
University of Texas-Austin	98	University of Michigan-Ann Arbor	107
University of Illinois-Urbana/Champaign	92	University of Wisconsin-Madison	98
University of Minnesota-Twin Cities	88	University of Minnesota-Twin Cities	96
Michigan State University	87	Princeton University	94
University of Pennsylvania	87	University of Pennsylvania	91
Northwestern University	82	CUNY Graduate School and University	87
Ohio State University-Main Campus	80	Ohio State University-Main Campus	87
University of Maryland-College Park	79	Stanford University	86
Yale University	78	University of Illinois-Urbana/Champaign	79
California School of Prof. Psych.-San Diego	76	University of Washington	77
Texas A&M University-College Station	76	Cornell University-Endowed Colleges	69
Education		**Professional/Other Fields**	
Nova Southeastern University	298	Nova Southeastern University	58
Teachers College at Columbia University	162	University of Texas-Austin	55
University of Texas-Austin	145	Florida State University	43
Pennsylvania State University-Main Campus	128	University of Wisconsin-Madison	42
University of Minnesota-Twin Cities	125	University of Minnesota-Twin Cities	40
Virginia Polytechnic Institute and State Univ.	122	New York University	40
Ohio State University-Main Campus	108	University of Maryland-College Park	36
University of Southern California	104	Michigan State University	36
University of Georgia	95	Pennsylvania State University-Main Campus	36
Temple University	90	University of California-Berkeley	35
University of Sarasota	76	University of California-Los Angeles	35
University of Illinois-Urbana/Champaign	76	University of Pennsylvania	35
Northern Illinois University	75	University of Southern California	34
Florida State University	74	University of Colorado-Boulder	34
Indiana University-Bloomington	72	Ohio State University-Main Campus	34
University of Pittsburgh-Main Campus	69	Indiana University-Bloomington	32
University of Missouri-Columbia	65	University of Michigan-Ann Arbor	31
North Carolina State University-Raleigh	65	University of North Carolina-Chapel Hill	31
University of Houston-University Park	65	University of Alabama	29
University of California-Los Angeles	64	Walden University	29

*Includes mathematics and computer sciences.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 4. Distribution of doctorate institutions and doctoral degrees by Carnegie classification

Carnegie Category	Number of Institutions	Number of Ph.D.s	Percent of all Ph.D.s	Average Number of Ph.D.s per Institution
Research I	89	28,861	67.6	324
Research II	37	4,799	11.2	130
Doctoral I	50	4,486	10.5	90
Doctoral II	58	2,061	4.8	36
Other	153	2,476	5.8	16

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates and a Classification of Institutions of Higher Education, 1994 Edition, The Carnegie Foundation for Advancement of Teaching.

Research Universities I: These institutions offer a full range of baccalaureate programs, are committed to graduate education through the doctorate, and give high priority to research. They award 50 or more doctoral degrees each year. In addition, they receive annually $40 million or more in federal support.

Research Universities II: These institutions offer a full range of baccalaureate programs, are committed to graduate education through the doctorate, and give high priority to research. They award 50 or more doctoral degrees each year. In addition, they receive annually between $15.5 million and $40 million in federal support.

Doctoral Universities I: These institutions offer a full range of baccalaureate programs and are committed to graduate education through the doctorate. They award at least 40 doctoral degrees annually in five or more disciplines.

Doctoral Universities II: These institutions offer a full range of baccalaureate programs and are committed to graduate education through the doctorate. They award annually at least 10 doctoral degrees – in three or more disciplines – or 20 or more doctoral degrees in one or more disciplines.

Other: Specialized Institutions; Master's (Comprehensive) Colleges and Universities I; Master's (Comprehensive) Colleges and Universities II; Baccalaureate (Liberal Arts) Colleges I; Baccalaureate Colleges II.

Table 5. Major field of doctorate recipients for selected years, 1968-1998

Field	1968	1973	1978	1983	1988	1993	1998
All Fields	22.937	33,755	30,875	31,281	33,500	39,801	42,683
Physical Sciences[*]	4,653	5,311	4,193	4,425	5,309	6,496	6,739
Engineering	2,855	3,364	2,423	2,781	4,187	5,698	5,919
Life Sciences	3,707	5,168	5,041	5,553	6,164	7,395	8,540
Social Sciences	3,495	5,757	6,038	6,096	5,781	6,545	7,075
Humanities	3,467	5,414	4,231	3,500	3,555	4,482	5,499
Education	4,029	7,238	7,194	7,174	6,362	6,689	6,559
Professional/Other Fields	731	1,503	1,755	1,752	2,142	2,496	2,352
Physical Sciences							
Physics & Astronomy	1,436	1,589	1,067	1,043	1,302	1,544	1,584
Chemistry	1,803	1,855	1,544	1,758	2,015	2,137	2,217
Earth, Atmos., & Marine Science	443	634	623	637	728	789	838
Mathematics	971	1,232	838	701	749	1,146	1,177
Computer Sciences[†]	0	1	121	286	515	880	923
Life Sciences							
Biological Sciences	2,827	3,648	3,516	3,741	4,111	5,092	5,848
Health Sciences	196	486	512	639	882	1,197	1,500
Agricultural Sciences	684	1,034	1,013	1,173	1,171	1,106	1,192
Social Sciences							
Psychology	1,464	2,458	3,055	3,347	3,074	3,420	3,681
Anthropology	138	326	399	373	325	342	425
Economics	747	942	800	813	852	930	998
Political Sci./International Rel.	580	908	695	473	469	609	759
Sociology	370	599	610	525	449	513	549
Other Social Sciences	196	524	479	565	612	731	663
Humanities							
History	741	1,216	852	616	603	726	988
English Language & Literature	930	1,414	1,025	715	717	948	1,076
Foreign Language & Literature	526	917	637	504	430	576	642
Other Humanities	1,270	1,867	1,717	1,665	1,805	2,232	2,793
Education							
Teacher Education	493	675	551	483	473	428	339
Teaching Fields	984	1,536	1,352	1,327	989	943	951
Other Education	2,552	5,027	5,291	5,364	4,900	5,318	5,269
Professional/Other							
Business & Management	440	785	713	750	1,033	1,281	1,165
Communications	49	199	292	250	247	321	372
Other Professional Fields	203	446	736	730	812	867	721
Other Fields	39	73	14	22	50	27	94

[*] Includes mathematics and computer sciences.

[†] Computer sciences first appeared on the survey form in 1978.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 6. Doctorate recipients by selected subfield and percent female, 1988 and 1998

	1988		1998		
Subfield/Discipline	**Number of Ph.D.s**	**Percent Ph.D.s to Females**	**Number of Ph.D.s**	**Percent Ph.D.s to Females**	**Percent Change in Number of Ph.D.s, 1988-1998**
Mathematics	749	16.2	1,177	25.2	57.1
Computer Sciences	514	10.9	923	17.0	79.6
Physics & Astronomy	1,302	10.0	1,584	14.1	21.7
Chemistry	2,018	21.3	2,217	31.3	9.9
Earth, Atmos. & Marine Sci.	726	19.8	838	27.2	15.4
Biochemistry	613	33.1	798	43.7	30.2
Cell Biology	117	47.0	299	51.5	55.6
Ecology	155	30.1	292	39.0	88.4
Molecular Biology	362	35.6	741	43.7	104.7
Microbiology	333	36.0	384	44.0	15.3
Neuroscience	161	36.0	412	40.8	155.9
Health Sciences	867	62.6	1,500	67.1	73.0
Agricultural Sciences	1,170	18.5	1,192	28.3	1.9
Psychology	3,058	54.8	3,676	66.9	20.2
Anthropology	325	52.0	425	56.2	30.8
Economics	825	19.8	973	27.4	17.9
Political Science & Govt.	391	24.3	662	36.7	69.3
Sociology	449	53.0	549	55.4	22.3
History	603	36.0	988	39.0	63.8
Linguistics	166	50.0	219	56.2	31.9
Art History	132	61.4	220	75.0	66.7
Music	505	30.5	694	42.4	37.4
Philosophy	223	23.8	408	29.4	83.0
Language & Literature	1,146	56.6	1,718	57.9	49.9
Business & Management	1,039	23.8	1,165	32.3	12.1

See appendix table A-1.

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 7. Sex of doctorate recipients by broad field for selected years, 1958-1998 (by number [N] and percent)

	1958		1963		1968		1973		1978		1983		1988		1993		1998	
Field/Sex	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
All Fields																		
Group Total	8,773	100.0	12,728	100.0	22,937	100.0	33,755	100.0	30,875	100.0	31,281	100.0	33,500*	100.0	39,801†	100.0	42,683‡	100.0
Male	7,782	88.7	11,336	89.1	20,005	87.2	27,670	82.0	22,553	73.0	20,748	66.3	21,680	64.7	24,382	61.3	24,653	57.8
Female	991	11.3	1,392	10.9	2,932	12.8	6,085	18.0	8,322	27.0	10,533	33.7	11,819	35.3	15,122	38.0	17,856	41.8
Physical Sciences§																		
Group Total	1,890	100.0	2,910	100.0	4,653	100.0	5,311	100.0	4,193	100.0	4,425	100.0	5,309	100.0	6,496	100.0	6,739	100.0
Male	1,819	96.2	2,786	95.7	4,420	95.0	4,929	92.8	3,754	89.5	3,808	86.1	4,430	83.4	5,083	78.2	5,104	75.7
Female	71	3.8	124	4.3	233	5.0	382	7.2	439	10.5	617	13.9	879	16.6	1,342	20.7	1,600	23.7
Engineering																		
Group Total	629	100.0	1,357	100.0	2,855	100.0	3,364	100.0	2,423	100.0	2,781	100.0	4,187	100.0	5,698	100.0	5,919	100.0
Male	626	99.5	1,347	99.3	2,843	99.6	3,318	98.6	2,370	97.8	2,657	95.5	3,901	93.2	5,096	89.4	5,108	86.3
Female	3	0.5	10	0.7	12	0.4	46	1.4	53	2.2	124	4.5	286	6.8	522	9.2	769	13.0
Life Sciences																		
Group Total	1,622	100.0	2,083	100.0	3,707	100.0	5,168	100.0	5,041	100.0	5,553	100.0	6,164	100.0	7,395	100.0	8,540	100.0
Male	1,459	90.0	1,876	90.1	3,197	86.2	4,246	82.2	3,882	77.0	3,832	69.0	3,893	63.2	4,262	57.6	4,640	54.3
Female	163	10.0	207	9.9	510	13.8	922	17.8	1,159	23.0	1,721	31.0	2,271	36.8	3,086	41.7	3,876	45.4
Social Sciences																		
Group Total	1,568	100.0	2,027	100.0	3,495	100.0	5,757	100.0	6,038	100.0	6,096	100.0	5,780	100.0	6,545	100.0	7,075	100.0
Male	1,362	86.9	1,763	87.0	2,941	84.1	4,546	79.0	4,177	69.2	3,690	60.5	3,178	55.0	3,289	50.3	3,206	45.3
Female	206	13.1	264	13.0	554	15.9	1,211	21.0	1,861	30.8	2,406	39.5	2,602	45.0	3,229	49.3	3,838	54.2
Humanities																		
Group Total	1,362	100.0	1,842	100.0	3,467	100.0	5,414	100.0	4,231	100.0	3,500	100.0	3,555	100.0	4,482	100.0	5,499	100.0
Male	1,160	85.2	1,538	83.5	2,735	78.9	3,864	71.4	2,635	62.3	1,969	56.3	1,980	55.7	2,324	51.9	2,814	51.2
Female	202	14.8	304	16.5	732	21.1	1,550	28.6	1,596	37.7	1,531	43.7	1,575	44.3	2,128	47.5	2,675	48.6
Education																		
Group Total	1,491	100.0	2,137	100.0	4,029	100.0	7,238	100.0	7,194	100.0	7,174	100.0	6,362	100.0	6,689	100.0	6,559	100.0
Male	1,180	79.1	1,720	80.5	3,228	80.1	5,455	75.4	4,339	60.3	3,555	49.6	2,848	44.8	2,748	41.1	2,422	36.9
Female	311	20.9	417	19.5	801	19.9	1,783	24.6	2,855	39.7	3,619	50.4	3,514	55.2	3,921	58.6	4,120	62.8
Professional/Other																		
Group Total	211	100.0	372	100.0	731	100.0	1,503	100.0	1,755	100.0	1,752	100.0	2,142	100.0	2,496	100.0	2,352	100.0
Male	176	83.4	306	82.3	641	87.7	1,312	87.3	1,396	79.5	1,237	70.6	1,450	67.7	1,580	63.3	1,359	57.8
Female	35	16.6	66	17.7	90	12.3	191	12.7	359	20.5	515	29.4	692	32.3	894	35.8	978	41.6

*Total includes 1 individual of unknown sex.

†Total includes 297 individuals of unknown sex.

‡Total includes 174 individuals of unknown sex.

§Includes mathematics and computer sciences.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 8. Race/ethnicity of U.S. citizen doctorate recipients by broad field for selected years, 1978-1998

Field	Race/Ethnicity	1978	1983	1988	1993	1998
All Fields	Group Total	25,291	24,360	23,290	26,449	28,218
	Known Race/Ethnicity	23,778	23,740	22,907	26,217	27,352
	Asian*	390	492	614	891	1,168
	Black	1,031	922	818	1,111	1,467
	Hispanic	486	539	595	834	1,190
	American Indian†	60	81	94	120	189
	White	21,811	21,706	20,786	23,261	23,338
Physical Sciences‡	Group Total	3,200	3,138	3,238	3,477	3,660
	Known Race/Ethnicity	2,947	3,024	3,150	3,433	3,532
	Asian*	81	93	112	182	190
	Black	51	26	34	41	82
	Hispanic	30	37	70	87	102
	American Indian†	5	9	11	11	19
	White	2,780	2,859	2,923	3,112	3,139
Engineering	Group Total	1,261	1,163	1,780	2,228	2,543
	Known Race/Ethnicity	1,168	1,119	1,738	2,208	2,461
	Asian*	63	66	141	217	244
	Black	9	19	19	41	76
	Hispanic	20	18	43	56	100
	American Indian†	2	0	4	2	13
	White	1,074	1,016	1,531	1,892	2,028
Life Sciences	Group Total	4,030	4,437	4,406	4,830	5,288
	Known Race/Ethnicity	3,794	4,335	4,342	4,786	5,153
	Asian*	90	132	128	217	291
	Black	73	64	72	123	163
	Hispanic	47	48	85	126	212
	American Indian†	8	8	18	14	25
	White	3,576	4,083	4,039	4,306	4,462
Social Sciences	Group Total	5,118	5,048	4,349	4,951	5,312
	Known Race/Ethnicity	4,815	4,910	4,283	4,914	5,130
	Asian*	52	64	85	104	172
	Black	170	185	163	205	277
	Hispanic	93	137	134	182	293
	American Indian†	6	12	12	19	42
	White	4,494	4,512	3,889	4,404	4,346
Humanities	Group Total	3,780	2,984	2,795	3,510	4,241
	Known Race/Ethnicity	3,560	2,903	2,751	3,470	4,101
	Asian*	29	35	37	60	112
	Black	80	73	77	95	150
	Hispanic	111	96	93	130	157
	American Indian†	8	6	7	13	22
	White	3,332	2,693	2,537	3,172	3,660
Education	Group Total	6,498	6,246	5,300	5,791	5,529
	Known Race/Ethnicity	6,175	6,143	5,238	5,762	5,382
	Asian*	57	74	82	85	102
	Black	585	493	373	516	619
	Hispanic	157	181	151	213	277
	American Indian†	29	45	36	51	50
	White	5,347	5,350	4,596	4,897	4,334
Professional/Other	Group Total	1,404	1,344	1,422	1,662	1,645
	Known Race/Ethnicity	1,319	1,306	1,405	1,644	1,593
	Asian*	18	28	29	26	57
	Black	63	62	80	90	100
	Hispanic	28	22	19	40	49
	American Indian†	2	1	6	10	18
	White	1,208	1,193	1,271	1,478	1,369

*Includes Pacific Islander.
†Includes Alaskan Native.
‡Includes mathematics and computer sciences.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 9. Major field of U.S. citizen Ph.D.s by race/ethnicity, 1998

Field	Total U.S. Citizen Ph.D.s	Number with Known	U.S. Citizens by Race/Ethnicity				
			Asian*	Black	Hispanic	Amer. Indian†	White
All Fields	28,218	27,352	1,168	1,467	1,190	189	23,338
Physical Sciences	3,660	3,532	190	82	102	19	3,139
Physics & Astronomy	832	799	48	11	15	3	722
Chemistry	1,275	1,240	71	39	34	7	1,089
Earth, Atmos., & Marine Science	513	496	6	8	15	3	464
Mathematics	573	552	25	12	25	3	487
Computer Sciences	467	445	40	12	13	3	377
Engineering	2,543	2,461	244	76	100	13	2,028
Life Sciences	5,288	5,153	291	163	212	25	4,462
Biological Sciences	3,726	3,630	250	98	150	12	3,120
Health Sciences	1,035	1,010	32	57	36	4	881
Agricultural Sciences	527	513	9	8	26	9	461
Social Sciences	5,312	5,130	172	277	293	42	4,346
Psychology	3,167	3,048	93	149	197	31	2,578
Anthropology	325	302	9	10	19	5	259
Economics	409	400	29	12	18	0	341
Political Sci./International Rel.	578	567	17	36	27	3	484
Sociology	407	396	13	36	13	3	331
Other Social Sciences	426	417	11	34	19	0	353
Humanities	4,241	4,101	112	150	157	22	3,660
History	830	795	23	33	25	5	709
English Language & Lit.	946	920	20	30	28	4	838
Foreign Language & Lit.	405	390	6	4	52	3	325
Other Humanities	2,060	1,996	63	83	52	10	1,788
Education	5,529	5,382	102	619	277	50	4,334
Teacher Education	288	265	4	21	10	4	226
Teaching Fields	752	740	14	57	37	7	625
Other Education	4,489	4,377	84	541	230	39	3,483
Professional/Other	1,645	1,593	57	100	49	18	1,369
Business & Management	765	736	26	39	20	9	642
Communications	289	283	7	21	7	2	246
Other Professional Fields	566	553	24	39	21	7	462
Other Fields	25	21	0	1	1	0	19

NOTE: See technical notes in appendix C for the rate of nonresponse to the survey question on race/ethnicity.

*Asian includes Pacific Islander.
†American Indians includes Alaskan Native.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 10. Leading doctorate-granting institutions of U.S. minority Ph.D.s, 1994-1998

Institution	Number of Ph.D.s	Institution	Number of Ph.D.s
Asian*		**Hispanic**	
University of California-Berkeley	291	University of Texas-Austin	176
University of California-Los Angeles	268	Puerto Rico-Rio Piedras	154
Stanford University	194	University of California-Berkeley	137
Harvard University	136	University of California-Los Angeles	114
Massachusetts Institute of Technology	134	Caribbean Center for Advanced Studies, PR	112
University of Michigan-Ann Arbor	133	Texas A&M University-College Station	111
University of Illinois-Urbana/Champaign	128	Stanford University	94
University of Southern California	122	Harvard University	86
University of California-Davis	104	Arizona State University-Main Campus	85
Columbia University, NYC	97	University of Arizona	79
Purdue University-Main Campus	90	University of Miami	78
University of Washington	81	University of Michigan-Ann Arbor	75
University of Wisconsin-Madison	81	University of New Mexico	75
University of Hawaii-Manoa	79	University of Southern California	72
Northwestern University	76	Nova Southeastern University	66
Yale University	75	University of California-Davis	64
University of California-San Diego	73	New York University	64
University of Texas-Austin	68	Pennsylvania State University Main Campus	64
University of Chicago	67	University of Colorado-Boulder	62
University of Maryland-College Park	67	University of Wisconsin-Madison	62
Top 20 Institutions	*2,364*	*Top 20 Institutions*	*1,830*
Total Institutions Reported (311)	*5,645*	*Total Institutions Reported (304)*	*4,990*
Black		**American Indian†**	
Nova Southeastern University	272	University of Oklahoma-Norman	28
Howard University	224	Oklahoma State University-Main Campus	27
University of Michigan Ann Arbor	140	Pennsylvania State University-Main Campus	17
Ohio State University-Main Campus	128	University of Washington	15
Wayne State University	119	University of Arizona	14
University of Maryland-College Park	118	University of California-Berkeley	14
Clark Atlanta University	106	University of California-Los Angeles	14
Virginia Polytechnic Institute & State University	105	University of Michigan-Ann Arbor	14
Teachers College at Columbia University, NYC	104	Stanford University	14
Temple University	100	University of Arkansas-Fayetteville	13
Florida State University	99	Harvard University	12
North Carolina State University-Raleigh	86	Michigan State University	11
University of Illinois-Urbana/Champaign	82	North Carolina State University-Raleigh	11
Walden University	79	University of Texas-Austin	11
Michigan State University	78	University of Wisconsin-Madison	11
University of California-Berkeley	77	University of Georgia	10
University of North Carolina-Chapel Hill	75	University of Missouri-Columbia	9
University of South Carolina-Columbia	75	University of New Mexico	9
University of Texas-Austin	74	University of North Dakota-Main Campus	9
University of California-Los Angeles	71	Texas A&M University-College Station	9
Top 20 Institutions	*2,212*	*Top 20 Institutions*	*272*
Total Institutions Reported (310)	*6,528*	*Total Institutions Reported (217)*	*833*

*Includes Pacific Islander.
†Includes Alaskan Native.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 11. Citizenship status of doctorate recipients by broad field for selected years, 1968-1998

Field/Citizenship	1968	1973	1978	1983	1988	1993	1998
All Fields	22,937	33,755	30,875	31,281	33,500	39,801	42,683
U.S. Citizen	19,229	27,914	25,291	24,360	23,290	26,449	28,218
Non-U.S., Permanent Visa	1,046	1,998	1,344	1,274	1,622	2,259	2,696
Non-U.S., Temporary Visa	2,268	3,174	3,421	4,498	6,195	9,932	8,642
Unknown	394	669	819	1,149	2,393	1,161	3,127
Physical Sciences*	4,653	5,311	4,193	4,425	5,309	6,496	6,739
U.S. Citizen	3,865	4,101	3,200	3,138	3,238	3,477	3,660
Non-U.S., Permanent Visa	187	433	257	223	252	456	551
Non-U.S., Temporary Visa	510	683	646	925	1,483	2,363	2,041
Unknown	91	94	90	139	336	200	487
Engineering	2,855	3,364	2,423	2,781	4,187	5,698	5,919
U.S. Citizen	2,105	2,142	1,261	1,163	1,780	2,228	2,543
Non-U.S., Permanent Visa	273	557	325	319	366	469	478
Non-U.S., Temporary Visa	436	622	768	1,170	1,721	2,784	2,392
Unknown	41	43	69	129	320	217	506
Life Sciences	3,707	5,168	5,041	5,553	6,164	7,395	8,540
U.S. Citizen	2,894	4,062	4,030	4,437	4,406	4,830	5,288
Non-U.S., Permanent Visa	186	367	215	190	305	419	732
Non-U.S., Temporary Visa	585	649	668	776	1,069	1,988	1,946
Unknown	42	90	128	150	384	158	574
Social Sciences	3,495	5,757	6,038	6,096	5,781	6,545	7,075
U.S. Citizen	2,961	4,885	5,118	5,048	4,349	4,951	5,312
Non-U.S., Permanent Visa	149	236	211	191	223	323	299
Non-U.S., Temporary Visa	310	519	488	570	709	1,075	912
Unknown	75	117	221	287	500	196	552
Humanities	3,467	5,414	4,231	3,500	3,555	4,482	5,499
U.S. Citizen	3,105	4,817	3,780	2,984	2,795	3,510	4,241
Non-U.S., Permanent Visa	147	232	139	118	168	267	338
Non-U.S., Temporary Visa	152	251	198	258	350	572	537
Unknown	63	114	114	140	242	133	383
Education	4,029	7,238	7,194	7,174	6,362	6,689	6,559
U.S. Citizen	3,736	6,724	6,498	6,246	5,300	5,791	5,529
Non-U.S., Permanent Visa	54	105	128	148	177	177	171
Non-U.S., Temporary Visa	184	290	412	555	481	546	424
Unknown	55	119	156	225	404	175	435
Professional/Other	731	1,503	1,755	1,752	2,142	2,496	2,352
U.S. Citizen	563	1,183	1,404	1,344	1,422	1,662	1,645
Non-U.S., Permanent Visa	50	68	69	85	131	148	127
Non-U.S., Temporary Visa	91	160	241	244	382	604	390
Unknown	27	92	41	79	207	82	190

*Includes mathematics and computer sciences.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 12. Top 30 countries of origin of non-U.S. citizens earning doctorates at U.S. colleges and universities, 1998 (ranked by number of Ph.D.s)

Country		Number of Ph.D.s
1.	China, Peoples Republic of	2,571
2.	India	1,259
3.	China, Republic of (Taiwan)	1,100
4.	Korea	1,027
5.	Canada	448
6.	Germany	288
7.	Russia	216
8.	Japan	205
9.	Mexico	192
10.	Brazil	186
11.	Great Britain, UK	182
12.	Turkey	180
13.	Thailand	169
14.	Greece	128
15.	France	116
16.	Italy	115
17.	Romania	104
18.	Hong Kong	100
19.	Iran	97
20.	Spain	95
21.	Argentina	94
22.	Egypt	88
23.	Yugoslavia	79
23.	Jordan	79
25.	Australia	77
26.	Israel	76
26.	Venezuela	76
28.	Indonesia	73
29.	Philippines	67
30.	Malaysia	66

Top 30 Countries of Origin *9,371*
Total Countries Reported (169) *42,683*

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 13. Leading doctorate-granting institutions of non-U.S. citizen Ph.D.s, 1998 (ranked by number of Ph.D.s)

Institution	Number of Ph.D.s	Institution	Number of Ph.D.s
University of Texas-Austin	249	Pennsylvania State University-Main Campus	179
University of Minnesota-Twin Cities	241	Columbia University, New York City	174
University of Wisconsin-Madison	224	University of Florida	171
Texas A&M University-College Station	223	University of California-Berkeley	169
Ohio State University-Main Campus	221	Harvard University	169
Purdue University-Main Campus	215	University of California-Los Angeles	149
University of Michigan-Ann Arbor	208	University of Southern California	141
Stanford University	203	Iowa State University	136
University of Illinois-Urbana/Champaign	188	University of Maryland-College Park	136
Cornell University-Endowed Colleges	186	University of Pittsburgh-Main Campus	132
		Top 20 Institutions	***3,714***
		Total Institutions Reported (335)	***11,338***

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 14. Leading doctorate-granting institutions of non-U.S. citizen Ph.D.s, 1998 (ranked by percentage of Ph.D.s*)

Institution	Percent of Ph.D.s†	Institution	Percent of Ph.D.s†
New Jersey Institute of Technology	87.1	University of Medicine and Dentistry of New Jersey	52.4
Clarkson University	77.3	Michigan Technological University	51.0
North Dakota State University-Main Campus	74.2	Carnegie Mellon University	50.5
Polytechnic University	69.2	Medical College of Georgia	50.0
Rockefeller University	62.5	University of Texas Health Science-San Antonio	50.0
Illinois Institute of Technology	58.7	SUNY at Stony Brook	46.6
University of Missouri-Rolla	57.4	Colorado School of Mines	45.9
Florida Institute of Technology	55.0	University of Texas Health Science Center	45.5
Drexel University	53.8	Iowa State University	45.3
University of Maryland-Baltimore County	52.7	Northeastern University	43.7

* The ranking excludes institutions with fewer than 10 non-U.S. citizen Ph.D.s.

†The percent column is based on the number of non-U.S. citizens as a percentage of the total Ph.D.s for that institution.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 15. Parental educational attainment of 1998 doctorate recipients

	Percent High School or Less	Percent College	Percent Advanced Degree
Total			
Father's Education	28.3	31.4	40.3
Mother's Education	37.1	35.0	27.9
Sex			
Male			
Father's Education	29.0	31.5	39.4
Mother's Education	39.2	34.1	26.7
Female			
Father's Education	27.5	31.6	40.9
Mother's Education	34.5	36.6	28.9
Race/Ethnicity (U.S. citizens only)			
Asian*			
Father's Education	31.9	40.4	27.7
Mother's Education	50.1	34.0	15.9
Black			
Father's Education	53.1	22.5	24.3
Mother's Education	51.9	26.9	21.3
Hispanic			
Father's Education	40.9	26.0	33.1
Mother's Education	52.6	28.6	18.9
American Indian†			
Father's Education	38.6	31.7	29.6
Mother's Education	41.3	38.1	20.6
White			
Father's Education	27.0	32.6	40.3
Mother's Education	34.3	39.7	26.0
Citizenship			
U.S. Citizen			
Father's Education	27.9	32.2	39.9
Mother's Education	34.0	39.9	26.1
Non-U.S., Permanent Visa			
Father's Education	33.0	35.4	31.6
Mother's Education	48.5	31.7	19.8
Non-U.S., Temporary Visa			
Father's Education	34.8	36.3	28.9
Mother's Education	52.5	30.3	17.2
Broad Field of Study			
Physical Sciences‡			
Father's Education	23.4	33.3	43.3
Mother's Education	33.4	35.9	30.7
Engineering			
Father's Education	25.8	36.5	37.7
Mother's Education	40.0	36.0	24.1
Life Sciences			
Father's Education	27.1	32.4	40.5
Mother's Education	36.3	36.6	27.1
Social Sciences			
Father's Education	24.2	30.1	45.7
Mother's Education	32.1	35.4	32.5
Humanities			
Father's Education	24.0	29.5	46.5
Mother's Education	31.7	36.4	31.9
Education			
Father's Education	43.8	27.1	29.1
Mother's Education	48.1	30.2	21.6
Professional/Other Fields			
Father's Education	32.0	30.4	37.6
Mother's Education	40.8	32.8	26.4

*Includes Pacific Islander.
†Includes Alaskan Native.
‡Includes mathematics and computer sciences.
SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 16. Median number of years from baccalaureate to doctorate award by broad field for selected years, 1973-1998

Field	1973	1978	1983	1988	1993	1998
All Fields						
Total	8.5	9.0	9.9	10.6	10.7	10.4
Registered	6.0	6.2	6.7	7.0	7.2	7.3
Physical Sciences*						
Total	6.9	7.0	7.2	7.6	8.4	8.0
Registered	5.9	5.9	6.0	6.2	6.6	6.7
Engineering						
Total	7.9	7.6	8.0	8.1	9.0	8.9
Registered	5.8	5.7	5.9	6.0	6.4	6.7
Life Sciences						
Total	7.2	7.4	8.0	9.0	9.5	9.1
Registered	5.7	5.9	6.2	6.7	7.0	7.0
Social Sciences						
Total	7.8	8.2	9.5	10.6	10.6	9.9
Registered	5.9	6.1	7.0	7.5	7.6	7.5
Humanities						
Total	9.2	10.2	11.2	12.2	12.0	11.6
Registered	6.5	7.4	8.0	8.5	8.3	8.7
Education						
Total	12.6	12.9	14.1	17.0	19.3	20.0
Registered	6.2	6.6	7.5	8.0	8.3	8.4
Professional/Other						
Total	10.0	10.9	12.1	13.0	13.3	13.7
Registered	6.0	6.2	7.0	7.5	7.6	8.0

*Includes mathematics and computer sciences.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 17. Median number of years from baccalaureate to doctorate award by demographic group and broad field, 1998

	All Fields	Physical Sciences*	Engineering	Life Sciences	Social Sciences	Humanities	Education	Prof./ Other
Elapsed Time from Baccalaureate (years)								
All Ph.D.s	10.4	8.0	8.9	9.1	9.9	11.6	20.0	13.7
Sex								
Male	9.9	8.0	9.0	9.0	10.0	11.3	18.9	13.1
Female	11.3	7.8	8.0	9.4	9.6	11.9	20.6	14.6
Citizenship								
U.S. Citizen	10.7	7.2	8.0	8.9	9.6	11.7	21.0	15.3
Non-U.S., Permanent Visa	11.4	11.2	11.0	10.9	11.4	12.2	14.3	12.8
Non-U.S., Temporary Visa	9.5	8.9	9.1	9.4	10.0	10.4	12.5	10.7
Unknown	11.2	9.8	10.9	11.2	11.5	12.0	16.2	11.5
Race/Ethnicity (U.S. citizens only)								
Asian†	8.2	7.0	7.6	8.0	8.4	9.5	16.0	12.0
Black	14.0	7.9	8.5	9.3	10.5	11.1	21.0	17.8
Hispanic	11.0	8.0	8.0	9.6	9.8	11.0	18.9	17.2
American Indian‡	11.3	7.5	7.0	7.7	10.0	12.0	16.3	10.0
White	10.7	7.1	8.0	8.9	9.6	11.9	21.0	15.3
Registered Time from Baccalaureate (years)								
All Ph.D.s	7.3	6.7	6.7	7.0	7.5	8.7	8.4	8.0
Sex								
Male	7.2	6.8	6.7	7.0	7.6	8.3	8.4	7.9
Female	7.6	6.5	6.5	7.0	7.4	9.0	8.4	8.0
Citizenship								
U.S. Citizen	7.5	6.5	6.6	7.0	7.4	8.8	8.6	8.0
Non-U.S., Permanent Visa	7.9	7.8	7.3	7.5	8.3	9.0	8.3	8.4
Non-U.S., Temporary Visa	7.0	6.9	6.7	7.0	7.5	8.0	7.0	7.4
Unknown	7.3	7.2	7.1	7.1	8.9	9.9	8.8	7.5
Race/Ethnicity (U.S. citizens only)								
Asian†	7.0	6.6	6.6	7.0	6.9	8.1	8.2	7.3
Black	7.9	6.3	7.0	7.0	8.0	8.0	8.0	8.4
Hispanic	7.7	6.6	6.2	7.5	7.4	8.4	9.0	7.3
American Indian‡	7.5	7.3	6.4	6.1	8.0	8.1	8.3	8.1
White	7.5	6.5	6.5	7.0	7.4	8.9	8.7	8.0

*Includes mathematics and computer sciences.
†Includes Pacific Islander.
‡Includes Alaskan Native.
SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 18. Distribution of 1998 doctorate recipients by age at doctorate (in years)

	Age Grouping					
	21-25	**26-30**	**31-35**	**36-40**	**41-45**	**Over 45**
Total	60	9,890	9,859	5,143	3,265	5,218
Broad Field						
Physical Sciences*	33	2,640	1,620	596	252	152
Engineering	12	1,929	1,647	645	193	129
Life Sciences	7	2,408	2,280	957	566	513
Social Sciences	3	1,688	1,706	857	478	727
Humanities	2	710	1,468	868	508	695
Education	0	288	680	810	992	2,557
Professional/Other Fields	3	227	458	410	276	445
Sex						
Male	45	6,133	6,284	3,157	1,669	1,976
Female	15	3,756	3,575	1,986	1,596	3,242
Citizenship						
U.S. Citizen	25	7,118	5,619	3,415	2,570	4,771
Non-U.S., Permanent Visa	9	408	876	452	248	148
Non-U.S., Temporary Visa	24	2,214	3,022	1,102	379	200
Unknown	2	150	342	174	68	99
Race/Ethnicity (U.S. citizens only)						
Asian†	4	472	238	115	57	84
Black	0	225	230	182	181	396
Hispanic	0	233	244	172	128	191
American Indian‡	0	31	47	26	23	34
White	20	6,022	4,735	2,832	2,121	3,979

*Includes mathematics and computer sciences.
†Includes Pacific Islander.
‡Includes Alaskan Native.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 19. Primary sources of financial support for doctorate recipients by broad field and demographic group, 1998 (includes only Ph.D.s who reported primary source of support)

								U.S Citizens by Race/Ethnicity				
Primary Source of Support		**All Ph.D.s**	**Male**	**Female**	**U.S. Citizen**	**Permanent Visa**	**Temporary Visa**	**Asian***	**Black**	**Hispanic**	**American Indian†**	**White**
All Fields	N	42,683	24,653	17,856	28,218	2,696	8,642	1,168	1,467	1,190	189	23,338
Teaching Assistantships	%	17.8	18.2	17.3	16.1	22.8	21.4	12.9	6.8	12.2	13.8	17.0
Research Assistantships/Traineeships	%	26.5	31.7	19.3	20.5	37.7	42.1	32.2	8.7	13.1	15.6	21.1
Fellowships/Dissertation Grants	%	16.3	16.0	16.7	17.4	14.2	13.6	26.4	30.8	28.3	24.0	15.4
Own Resources	%	32.2	25.8	41.1	40.1	20.2	11.3	24.2	46.1	40.1	41.9	40.6
Foreign Government	%	2.5	3.4	1.4	0.1	2.1	9.7	0.3		1.1	0.6	0.1
Employer	%	3.1	3.5	2.7	4.0	1.7	1.1	2.0	5.7	3.1	3.0	4.0
Other	%	1.6	1.5	1.6	1.8	1.3	0.9	2.0	1.9	2.1	1.2	1.8
Physical Sciences‡	N	6,739	5,104	1,600	3,660	551	2,041	190	82	102	19	3,139
Teaching Assistantships	%	27.1	26.5	29.4	22.9	30.9	33.4	21.7	10.5	15.5	16.7	23.6
Research Assistantships/Traineeships	%	43.6	44.5	40.6	41.2	48.3	46.7	46.1	23.7	28.9	38.9	41.9
Fellowships/Dissertation Grants	%	13.9	13.4	15.7	17.8	7.4	9.2	18.9	50.0	34.0	16.7	16.2
Own Resources	%	10.5	10.4	10.7	14.4	10.7	3.7	11.1	10.5	15.5	27.8	14.6
Foreign Government	%	2.3	2.5	1.5	0.1	0.8	6.1	0.0	0.0	3.1	0.0	0.0
Employer	%	1.9	2.0	1.5	2.7	1.6	0.6	1.1	3.9	2.1	0.0	2.8
Other	%	0.7	0.7	0.6	0.9	0.4	0.4	1.1	1.3	1.0	0.0	0.7
Engineering	N	5,919	5,108	769	2,543	478	2,392	244	76	100	13	2,028
Teaching Assistantships	%	9.5	9.4	10.1	6.8	13.5	11.1	7.7	7.1	8.6	0.0	6.5
Research Assistantships/Traineeships	%	52.2	52.1	52.5	44.0	57.2	60.3	53.8	14.3	32.3	33.3	44.5
Fellowships/Dissertation Grants	%	13.4	12.3	20.7	21.1	6.4	6.9	18.8	55.7	31.2	41.7	19.6
Own Resources	%	13.6	14.3	8.7	17.5	13.0	9.6	12.0	12.9	15.1	16.7	18.5
Foreign Government	%	5.2	5.3	4.4	0.1	4.8	10.0	0.4	0.0	2.2	0.0	0.0
Employer	%	4.9	5.3	2.5	8.3	3.4	1.8	4.7	8.6	9.7	8.3	8.7
Other	%	1.3	1.3	1.2	2.1	1.6	0.3	2.6	1.4	1.1	0.0	2.3
Life Sciences	N	8,540	4,640	3,876	5,288	732	1,946	291	163	212	25	4,462
Teaching Assistantships	%	11.9	12.5	11.2	11.1	12.6	13.7	5.9	4.5	6.9	4.5	12.0
Research Assistantships/Traineeships	%	40.4	43.4	36.8	36.0	52.9	48.0	39.9	23.4	26.2	45.5	36.6
Fellowships/Dissertation Grants	%	22.9	22.4	23.5	24.8	21.0	18.8	37.4	46.1	38.6	40.9	22.5
Own Resources	%	18.3	14.3	23.0	23.7	11.0	6.6	13.9	22.1	22.8	0.0	24.5
Foreign Government	%	3.2	4.2	2.1	0.3	1.3	11.2	0.4	0.0	3.0	0.0	0.1
Employer	%	1.8	1.8	1.9	2.5	0.4	0.6	1.1	3.2	1.0	9.1	2.5
Other	%	1.4	1.3	1.6	1.6	0.7	1.1	1.5	0.6	1.5	0.0	1.7
Social Sciences	N	7,075	3,206	3,838	5,312	299	912	172	277	293	42	4,346
Teaching Assistantships	%	20.4	23.0	18.2	18.4	30.0	28.5	20.5	9.9	12.3	18.8	19.2
Research Assistantships/Traineeships	%	14.0	13.6	14.4	13.8	12.6	15.4	13.7	8.7	7.4	9.4	14.7
Fellowships/Dissertation Grants	%	17.4	19.0	16.0	16.6	17.0	21.5	26.7	38.7	29.9	25.0	14.0
Own Resources	%	43.0	37.3	47.9	48.1	33.7	19.0	38.5	39.9	45.1	43.8	49.2
Foreign Government	%	2.0	3.4	0.8	0.1	2.2	12.2	0.0	0.0	0.4	3.1	0.1
Employer	%	1.7	1.9	1.4	1.8	1.9	1.1	0.0	2.0	3.3	0.0	1.7
Other	%	1.4	1.7	1.2	1.1	2.6	2.5	0.6	0.8	1.6	0.0	1.2
Humanities	N	5,499	2,814	2,675	4,241	338	537	112	150	157	22	3,660
Teaching Assistantships	%	32.4	31.6	33.1	31.0	41.3	37.0	18.1	14.7	36.1	31.8	31.9
Research Assistantships/Traineeships	%	1.7	1.9	1.4	1.5	1.9	2.8	1.0	2.1	0.7	0.0	1.6
Fellowships/Dissertation Grants	%	23.3	22.9	23.6	23.0	20.5	27.0	40.0	46.9	34.7	22.7	20.9
Own Resources	%	38.7	38.9	38.5	41.4	33.0	23.4	38.1	32.9	25.9	45.5	42.4
Foreign Government	%	1.1	1.2	1.1	0.1	1.3	8.4	0.0	0.0	0.0	0.0	0.1
Employer	%	1.4	1.9	0.9	1.6	0.3	0.6	1.0	1.4	1.4	0.0	1.6
Other	%	1.4	1.6	1.3	1.5	1.6	0.8	1.9	2.1	1.4	0.0	1.5
Education	N	6,559	2,422	4,120	5,529	171	424	102	619	277	50	4,334
Teaching Assistantships	%	7.4	7.0	7.7	6.3	18.4	16.2	8.1	3.6	3.2	2.3	6.8
Research Assistantships/Traineeships	%	5.7	5.6	5.8	4.7	11.2	15.9	4.7	3.4	2.4	4.5	5.0
Fellowships/Dissertation Grants	%	6.6	6.7	6.5	5.8	10.5	13.7	11.6	13.6	13.0	20.5	4.0
Own Resources	%	69.0	66.9	70.3	72.3	48.0	38.2	65.1	68.1	74.1	68.2	72.9
Foreign Government	%	1.1	1.7	0.6	0.0	4.6	11.9	0.0	0.0	0.0	0.0	0.0
Employer	%	7.2	9.0	6.2	7.8	3.9	2.0	5.8	8.9	3.2	2.3	8.1
Other	%	3.0	3.2	2.9	3.1	3.3	2.0	4.7	2.4	4.0	2.3	3.1
Professional/Other Fields	N	2,332	1,346	973	1,644	127	389	57	100	49	18	1,369
Teaching Assistantships	%	19.4	20.0	18.7	17.1	19.8	27.3	16.0	5.3	6.5	29.4	18.4
Research Assistantships/Traineeships	%	12.0	12.3	11.6	9.3	17.2	21.2	12.0	9.6	10.9	0.0	9.3
Fellowships/Dissertation Grants	%	12.6	12.5	12.7	11.6	15.5	15.7	26.0	27.7	17.4	5.9	9.6
Own Resources	%	46.9	44.4	50.3	54.1	40.5	20.9	38.0	45.7	56.5	52.9	55.2
Foreign Government	%	2.5	3.3	1.4	0.1	1.7	12.1	2.0	0.0	0.0	0.0	0.1
Employer	%	4.5	5.3	3.6	5.4	4.3	1.1	0.0	7.4	4.3	5.9	5.5
Other	%	2.1	2.2	1.8	2.3	0.9	1.7	6.0	4.3	4.3	5.9	2.0

Note: Table includes 174 Ph.D.s whose sex was not reported.
*Includes Pacific Islander.
†Includes Alaskan Native.
‡Includes mathematics and computer sciences

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

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Table 20. Postgraduation status of doctorate recipients by broad field for selected years, 1978-1998

		All Fields	Physical Sciences*	Engineering	Life Sciences	Social Sciences	Humanities	Education	Prof./Other
Total									
1978	N	30,875	4,193	2,423	5,041	6,038	4,231	7,194	1,755
1983	N	31,281	4,425	2,781	5,553	6,096	3,500	7,174	1,752
1989	N	33,500	5,309	4,187	6,164	5,781	3,555	6,362	2,142
1993	N	39,801	6,496	5,698	7,395	6,545	4,482	6,689	2,496
1998	N	42,683	6,739	5,919	8,540	7,075	5,499	6,559	2,352
Total Responses to Postgraduation Status									
1978	N	28,582	3,936	2,222	4,716	5,522	3,893	6,669	1,624
1983	N	28,719	4,080	2,479	5,136	5,537	3,197	6,681	1,609
1988	N	30,224	4,799	3,707	5,626	5,147	3,254	5,798	1,893
1993	N	36,546	5,947	5,165	6,877	6,009	4,159	6,116	2,273
1998	N	38,114	6,095	5,317	7,739	6,158	4,991	5,761	2,053
Definite Commitments for Employment or Study									
1978	%	72.9	76.0	76.0	76.5	70.9	61.5	73.0	85.1
1983	%	73.8	77.2	74.6	76.2	69.9	64.7	74.5	84.4
1988	%	73.5	76.3	67.3	76.4	71.7	64.9	75.7	82.2
1993	%	67.0	66.0	55.7	73.4	65.9	59.9	73.0	75.6
1998	%	69.6	71.5	69.7	71.8	67.9	58.8	73.5	76.3
Seeking Employment or Study									
1978	%	27.1	24.0	24.0	23.5	29.1	38.5	27.0	14.9
1983	%	26.2	22.8	25.4	23.8	30.1	35.3	25.5	15.6
1988	%	26.5	23.7	32.7	23.6	28.3	35.1	24.3	17.8
1993	%	33.0	34.0	44.3	26.6	34.1	40.1	27.0	24.4
1998	%	30.4	28.5	30.3	28.2	32.1	41.2	26.5	23.7

NOTE: Percentages are based on the number of Ph.D.s who reported their postgraduation status (definite or seeking), regardless of plans (employment or study). See technical notes in appendix C for rates of nonresponse to the applicable questions and for further explanation of postgraduation plans.

*Includes mathematics and computer sciences.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 21. Postgraduation status of doctorate recipients by demographic group for selected years, 1978-1998

								U.S. Citizens & Permanent Residents				
		Total	Men	Women	U.S. Citizen	Perm. Visa	Temp. Visa	Asian*	Black	Hispanic	American Indian†	White
Total												
1978	N	30,875	22,553	8,322	25,291	1,344	3,421	1,032	1,104	553	60	22,342
1983	N	31,281	20,748	10,533	24,360	1,274	4,498	1,042	1,005	608	82	22,251
1988	N	33,500	21,680	11,819	23,290	1,622	6,195	1,235	970	693	94	21,460
1993	N	39,801	24,382	15,122	26,449	2,259	9,932	2,017	1,280	973	120	24,052
1998	N	42,683	24,653	17,856	28,218	2,696	8,642	2,720	1,586	1,311	189	24,153
Total Responses to Postgraduation Status												
1978	N	28,582	20,941	7,641	24,109	1,261	3,167	977	1,027	516	56	21,659
1983	N	28,719	18,992	9,727	23,373	1,181	4,098	975	965	575	79	21,573
1988	N	30,224	19,429	10,795	22,843	1,527	5,795	1,161	939	676	92	21,101
1993	N	36,546	22,533	14,007	25,284	2,074	9,141	1,850	1,183	918	113	23,130
1998	N	38,114	22,104	15,975	26,640	2,538	8,164	2,571	1,473	1,201	173	23,185
Definite Commitments for Employment or Study												
1978	%	72.9	75.2	66.7	73.7	61.9	71.5	64.0	69.3	71.1	73.2	73.8
1983	%	73.8	75.8	69.8	74.9	64.2	70.4	66.3	69.2	73.0	57.0	75.1
1988	%	73.5	74.4	71.7	75.8	59.8	67.7	66.5	68.6	72.0	69.6	75.7
1993	%	67.0	66.2	68.3	71.5	53.3	57.8	59.2	65.2	68.2	67.3	71.4
1998	%	69.6	70.5	68.4	71.7	62.5	66.0	65.8	65.2	69.9	62.4	72.1
Seeking Employment or Study												
1978	%	27.1	24.8	33.3	26.3	38.1	28.5	36.0	30.7	28.9	26.8	26.2
1983	%	26.2	24.2	30.2	25.1	35.8	29.6	33.7	30.8	27.0	43.0	24.9
1988	%	26.5	25.6	28.3	24.2	40.2	32.3	33.5	31.4	28.0	30.4	24.3
1993	%	33.0	33.8	31.7	28.5	46.7	42.2	40.8	34.8	31.8	32.7	28.6
1998	%	30.4	29.5	31.6	28.3	37.5	34.0	34.2	34.8	30.1	37.6	27.9

NOTE: Percentages are based on the number of Ph.D.s who reported their postgraduation status (definite or seeking), regardless of plans (employment or study). See technical notes in Appendix C for rates of nonresponse to the applicable questions and for further explanation of postgraduation plans

*Includes Pacific Islander.
†Includes Alaskan Native.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 22. Postgraduation commitments of doctorate recipients by type of plans and broad field for selected years, 1978-1998

		All Fields	Physical Sciences*	Engineering	Life Sciences	Social Sciences	Humanities	Education	Prof./ Other
All Definite Commitments									
1978	N	20,849	2,992	1,688	3,610	3,914	2,393	4,870	1,382
1983	N	21,186	3,150	1,850	3,913	3,869	2,068	4,978	1,358
1988	N	22,201	3,661	2,495	4,296	3,691	2,112	4,390	1,556
1993	N	24,481	3,925	2,876	5,046	3,960	2,491	4,464	1,719
1998	N	26,540	4,360	3,708	5,553	4,183	2,933	4,236	1,567
Definite Commitments with Response to Type of Plans									
1978	N	20,697	2,981	1,680	3,591	3,889	2,370	4,814	1,372
1983	N	21,139	3,144	1,844	3,909	3,862	2,062	4,966	1,352
1988	N	22,037	3,648	2,484	4,285	3,660	2,088	4,328	1,544
1993	N	24,363	3,917	2,867	5,034	3,941	2,465	4,429	1,710
1998	N	25,980	4,312	3,655	5,483	4,100	2,843	4,062	1,525
Employment									
1978	%	80.3	60.4	84.8	47.3	86.9	95.1	97.7	98.4
1983	%	79.3	61.9	87.5	44.8	86.1	95.3	97.4	97.2
1988	%	73.5	51.3	80.0	39.3	84.1	92.8	95.5	97.4
1993	%	71.0	50.1	74.7	35.8	79.9	92.9	96.9	97.1
1998	%	70.9	54.0	80.2	38.8	75.2	91.3	95.5	95.6
Study									
1978	%	19.7	39.6	15.2	52.7	13.1	4.9	2.3	1.6
1983	%	20.7	38.1	12.5	55.2	13.9	4.7	2.6	2.8
1988	%	26.5	48.7	20.0	60.7	15.9	7.2	4.5	2.6
1993	%	29.0	49.9	25.3	64.2	20.1	7.1	3.1	2.9
1998	%	29.1	46.0	19.8	61.2	24.8	8.7	4.5	4.4

NOTE: Only Ph.D.s with definite commitments are included. "All Definite Commitments" includes recipients who reported definite commitments but not type of plans (employment or study). Percentages are based on the number of Ph.D.s who reported a definite commitment and a type of plan. See technical notes in appendix C for rates of nonresponse to the applicable survey questions and for further explanation of postgraduation plans.

*Includes mathematics and computer sciences.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 23. Postgraduation commitments of doctorate recipients by type of plans and demographic group for selected years, 1978-1998

								U.S. Citizens & Permanent Residents				
		Total	Men	Women	U.S. Citizen	Perm. Visa	Temp. Visa	Asian*	Black	Hispanic	American Indian†	White
All Definite Commitments												
1978	N	20,849	15,750	5,099	17,772	781	2,265	625	712	367	41	15,981
1983	N	21,186	14,398	6,788	17,496	758	2,885	646	668	420	45	16,192
1988	N	22,201	14,463	7,738	17,325	913	3,925	772	644	487	64	15,984
1993	N	24,481	14,919	9,560	18,067	1,105	5,283	1,096	771	626	76	16,511
1998	N	26,540	15,586	10,932	19,098	1,585	5,388	1,693	961	840	108	16,721
Definite Commitments with Responses to Type of Plans												
1978	N	20,697	15,648	5,049	17,667	775	2,227	617	700	366	41	15,899
1983	N	21,139	14,364	6,775	17,468	757	2,867	644	665	420	45	16,172
1988	N	22,037	14,365	7,672	17,207	904	3,889	765	638	481	63	15,880
1993	N	24,363	14,858	9,503	17,990	1,096	5,251	1,088	765	624	76	16,442
1998	N	25,980	15,303	10,658	18,708	1,552	5,279	1,670	914	819	105	16,403
Employment												
1978	%	80.3	79.2	83.6	80.9	78.1	75.8	71.2	93.9	89.3	90.2	80.6
1983	%	79.3	77.9	82.1	79.6	80.2	77.1	73.6	92.3	86.4	97.8	79.2
1988	%	73.5	71.6	77.0	75.7	71.6	64.4	70.1	87.6	73.4	82.5	75.4
1993	%	71.0	68.4	75.1	74.3	65.8	60.7	60.9	83.5	73.9	85.5	74.3
1998	%	70.9	69.6	72.7	74.5	62.8	60.5	61.6	83.2	75.0	81.9	74.2
Study												
1978	%	19.7	20.8	16.4	19.1	21.9	24.2	28.8	6.1	10.7	9.8	19.4
1983	%	20.7	22.1	17.9	20.4	19.8	22.9	26.4	7.7	13.6	2.2	20.8
1988	%	26.5	28.4	23.0	24.3	28.4	35.6	29.9	12.4	26.6	17.5	24.6
1993	%	29.0	31.6	24.9	25.7	34.2	39.3	39.1	16.5	26.1	14.5	25.7
1998	%	29.1	30.4	27.3	25.5	37.2	39.5	38.4	16.8	25.0	18.1	25.8

NOTE: Only Ph.D.s with definite commitments are included. "All Definite Commitments" includes recipients who reported definite commitments but not type of plans (employment or study). Percentages are based on the number of Ph.D.s who reported a definite commitment and a type of plan. See technical notes in Appendix C for rates of nonresponse to the applicable survey questions and for further explanation of postgraduation plans.

*Asian includes Pacific Islander.
†Includes Alaskan Native.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 24. Postdoctoral location of non-U.S. citizen doctorate recipients with postgraduation commitments by major field and visa status, 1998

	Permanent Visa					Temporary Visa				
		U.S. Location		Foreign Location			U.S. Location		Foreign Location	
Field	Number of Responses	Employ. (%)	Study (%)	Employ. (%)	Study (%)	Number of Responses	Employ. (%)	Study (%)	Employ. (%)	Study (%)
All Fields	1,538	57.1	35.2	5.7	2.0	5,239	36.6	33.4	24.0	6.0
Physical Sciences*	334	59.3	35.0	1.8	3.9	1,304	34.6	46.4	11.4	7.6
Physics & Astronomy	84	47.6	42.9	1.2	8.3	1,436	27.8	52.8	6.0	13.4
Chemistry	103	54.4	44.7	1.0	0.0	1,213	20.6	67.2	8.5	3.7
Earth, Atmos., & Marine Sci.	39	51.3	41.0	5.1	2.6	546	33.1	42.5	14.2	10.2
Mathematics	50	60.0	28.0	2.0	10.0	270	43.5	29.0	19.4	8.1
Computer Sciences	58	89.7	8.6	1.7	0.0	217	65.1	16.7	15.1	3.1
Engineering	290	81.7	14.5	3.1	0.7	253	54.0	21.7	21.0	3.3
Life Sciences	456	25.0	70.4	2.9	1.8	335	12.4	59.4	20.8	7.4
Biological Sciences	360	17.8	79.7	0.6	1.9	402	9.1	73.9	9.6	7.4
Health Sciences	49	69.4	16.3	14.3	0.0	127	26.0	25.3	42.5	6.2
Agricultural Sciences	47	34.0	55.3	8.5	2.1	248	15.2	32.8	43.8	8.2
Social Sciences†	148	57.4	25.7	14.9	2.0	192	42.5	11.0	40.5	6.0
Psychology	52	48.1	42.3	9.6	0.0	811	33.3	28.9	25.6	12.2
Economics	44	65.9	11.4	20.5	2.3	146	51.4	3.9	41.8	2.8
Political Sci./International Rel.	9	44.4	44.4	11.1	0.0	256	37.0	13.0	41.3	8.7
Sociology	7	57.1	0.0	28.6	14.3	90	18.2	18.2	57.6	6.1
Humanities	150	79.3	8.0	10.7	2.0	282	42.2	9.3	39.6	8.9
Education	80	73.8	12.5	12.5	1.3	46	24.9	9.2	59.0	6.9
Professional/Other†	80	82.5	2.5	13.8	1.3	33	54.9	4.0	39.5	1.6
Business & Management	51	86.3	2.0	11.8	0.0	183	62.8	3.8	31.7	1.6

NOTE: Only non-U.S. citizen Ph.D.s with definite commitments are included. Percentages are based on the number of Ph.D.s who reported a definite commitment and a location. See technical notes in appendix C for rates of nonresponse to the applicable survey questions and for further explanation of postgraduation plans.

*Includes mathematics and computer sciences.
†Includes other fields not shown.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 25. Postdoctoral location of non-U.S. citizen doctorate recipients with postgraduation commitments by visa status for selected years, 1978-1998

		All Non-U.S. Citizen	Permanent Visa	Temporary Visa
All Definite Commitments				
1978	N	3,046	781	2,265
1983	N	3,643	758	2,885
1988	N	4,838	913	3,925
1993	N	6,388	1,105	5,283
1998	N	6,973	1,585	5,388
Definite Commitments with Response to Location				
1978	N	2,892	744	2,148
1983	N	3,375	696	2,679
1988	N	4,372	834	3,538
1993	N	6,311	1,100	5,211
1998	N	6,907	1,564	5,343
U.S. Location				
1978	%	52.4	92.1	38.6
1983	%	50.7	91.4	40.2
1988	%	61.0	85.0	55.3
1993	%	60.4	85.3	55.2
1998	%	74.8	92.3	69.6
Foreign Location				
1978	%	47.6	7.9	61.4
1983	%	49.3	8.6	59.8
1988	%	39.0	15.0	44.7
1993	%	39.6	14.7	44.8
1998	%	25.2	7.7	30.4

NOTE: Only non-U.S. citizen Ph.D.s with definite commitments are included. "All Definite Commitments" includes recipients who reported definite commitments but not location (U.S. or foreign). Percentages are based on the number of Ph.D.s who reported a definite commitment and a location.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

TABLE 26. Employment sector of doctorate recipients with postgraduation commitments in the United States by demographic group for selected years, 1978-1998

								U.S. Citizens & Permanent Residents				
		Total	Male	Female	U.S. Citizen	Perm. Visa	Temp. Visa	Asian*	Black	Hispanic	Amer. Indian†	White
All Employment Commitments												
1978	N	14,07	10,30	3,764	13,54	528	427	400	597	304	36	12,159
1983	N	13,24	8,527	4,714	12,73	505	626	415	523	321	38	11,767
1988	N	12,53	7,543	4,996	12,02	514	926	453	491	316	43	11,069
1993	N	13,64	7,272	6,374	13,05	596	1,328	579	621	446	65	11,884
1998	N	14,46	7,677	6,780	13,57	884	1,920	958	746	582	84	11,864
Employment Commitments with Response to Sector												
1978	N	14,03	10,27	3,754	13,50	527	422	400	595	301	36	12,129
1983	N	13,22	8,520	4,707	12,72	505	623	414	522	319	38	11,758
1988	N	12,51	7,530	4,986	12,00	513	924	453	489	312	43	11,053
1993	N	13,45	7,193	6,257	12,86	585	1,302	573	604	435	64	11,724
1998	N	13,92	7,405	6,516	13,07	846	1,856	898	704	545	81	11,477
Academe												
1978	%	57.0	53.5	66.6	57.5	45.5	59.0	32.8	65.4	64.1	55.6	57.4
1983	%	51.3	48.2	56.9	51.4	46.5	63.6	37.7	49.4	55.2	55.3	51.6
1988	%	50.8	47.1	56.3	50.5	56.3	67.4	36.6	57.5	54.8	41.9	51.0
1993	%	52.4	47.4	58.2	52.2	57.3	53.6	44.2	57.1	59.3	57.8	52.3
1998	%	50.0	44.1	56.6	51.0	33.7	29.6	29.1	52.8	59.6	54.3	50.9
Industry/Self-Employed												
1978	%	14.8	17.8	6.5	13.7	43.1	31.8	51.8	4.7	9.6	11.1	14.1
1983	%	19.1	23.5	11.1	18.3	40.4	31.8	47.1	8.2	14.1	10.5	18.7
1988	%	19.5	24.4	12.0	19.0	31.0	28.2	44.4	8.6	15.4	11.6	19.0
1993	%	18.8	24.3	12.5	18.1	33.8	39.4	40.8	8.4	16.1	7.8	18.4
1998	%	24.5	32.5	15.4	22.5	54.4	65.5	55.7	13.4	14.9	17.3	23.2
Government												
1978	%	12.3	13.5	9.0	12.5	5.3	2.1	9.3	10.1	13.6	22.2	12.3
1983	%	11.2	12.3	9.2	11.4	5.0	1.9	8.7	14.6	13.8	13.2	11.1
1988	%	10.7	12.0	8.7	11.0	3.5	1.2	8.2	12.1	11.9	23.3	10.7
1993	%	9.9	11.5	8.2	10.2	3.6	2.2	8.0	9.6	12.0	17.2	9.9
1998	%	8.2	9.8	6.3	8.4	4.6	1.3	6.9	7.8	7.5	7.4	8.3
Other												
1978	%	15.9	15.1	18.0	16.3	6.1	7.1	6.3	19.8	12.6	11.1	16.2
1983	%	18.5	16.1	22.8	18.9	8.1	2.7	6.5	27.8	16.9	21.1	18.6
1988	%	19.1	16.5	23.1	19.5	9.2	3.1	10.8	21.9	17.9	23.3	19.4
1993	%	18.9	16.9	21.2	19.5	5.3	4.8	7.0	24.8	12.6	17.2	19.4
1998	%	17.4	13.6	21.8	18.1	7.3	3.6	8.4	26.0	18.0	21.0	17.6

*Includes Pacific Islander.
†Includes Alaskan Native.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 27. Research doctorates by employment sector and Carnegie classification, 1998*

	Research I			Research II		
Sector	**Number of Ph.D.s**	**Percent of Research I**	**Percent of Sector**	**Number of Ph.D.s**	**Percent of Research II**	**Percent of Sector**
Academe	8,444	48.3	67.8	1,658	50.7	13.3
Government	1,303	7.5	65.5	244	7.5	12.3
Industry	5,583	31.9	72.1	841	25.7	10.9
Other	2,150	12.3	51.9	525	16.1	12.7

	Doctoral I			Doctoral II		
Sector	**Number of Ph.D.s**	**Percent of Doctoral I**	**Percent of Sector**	**Number of Ph.D.s**	**Percent of Doctoral II**	**Percent of Sector**
Academe	1,395	46.1	11.2	525	38.6	4.2
Government	204	6.7	10.3	114	8.4	5.7
Industry	637	21.1	8.2	408	30.0	5.3
Other	790	26.1	19.1	313	23.0	7.5

	Other		
Sector	**Number of Ph.D.s**	**Percent of Other**	**Percent of Sector**
Academe	425	35.6	3.4
Government	124	10.4	6.2
Industry	278	23.3	3.6
Other	368	30.8	8.9

* For overall totals (percents) by Carnegie classification, see Table 4.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 28. Doctorate recipients reporting postdoctoral plans to return to state of residence during high school, 1998 (by percent)

		Broad Field of Doctorate						
Place of High School	**All Fields**	**Physical Sciences***	**Engineering**	**Life Sciences**	**Social Sciences**	**Humanities**	**Education**	**Prof./Other Fields**
Total Returning	28.9	20.2	24.9	25.2	27.8	22.7	46.6	28.0
Alabama	36.7	20.0	34.5	25.4	28.6	24.4	55.9	42.3
Alaska	15.9	~~~	0.0	11.1	7.1	0.0	~~~	~~~
Arizona	25.4	16.7	10.5	24.4	8.1	19.4	59.6	21.4
Arkansas	25.7	18.8	11.1	~~~	21.7	16.1	36.7	20.0
California	47.1	44.1	61.2	47.7	47.1	33.8	58.7	38.2
Colorado	21.4	23.8	22.0	17.0	25.0	16.9	30.0	16.0
Connecticut	14.7	9.2	11.1	21.8	8.7	7.2	27.0	~~~
Delaware	13.3	5.9	16.7	0.0	5.6	20.0	~~~	0.0
District of Columbia	24.1	0.0	0.0	21.4	~~~	15.4	~~~	~~~
Florida	30.6	19.0	25.8	24.2	25.7	33.0	48.3	31.9
Georgia	38.5	16.3	21.9	20.5	34.5	37.0	59.3	~~~
Hawaii	18.3	0.0	7.1	~~~	10.0	14.3	~~~	~~~
Idaho	15.5	7.1	0.0	13.6	~~~	13.3	~~~	0.0
Illinois	26.6	16.0	22.0	20.2	30.1	20.5	45.7	23.3
Indiana	19.8	8.8	7.8	19.6	6.9	14.5	48.1	13.8
Iowa	20.1	9.4	15.0	17.9	11.8	15.9	38.1	9.7
Kansas	19.0	11.5	0.0	20.8	12.5	11.4	40.7	13.6
Kentucky	28.6	14.8	11.1	32.7	32.6	26.2	48.2	21.7
Louisiana	36.1	25.6	~~~	25.4	31.9	30.2	53.3	~~~
Maine	12.6	14.3	9.1	8.0	14.3	10.0	15.8	~~~
Maryland	22.0	19.3	27.4	21.5	21.4	15.1	33.3	18.9
Massachusetts	26.7	21.2	30.0	26.4	30.8	18.0	37.3	28.6
Michigan	26.9	13.0	25.8	25.9	27.1	15.1	47.8	32.2
Minnesota	26.4	29.8	28.0	21.6	21.9	22.6	43.8	15.2
Mississippi	35.5	~~~	~~~	20.0	22.7	21.1	50.5	21.1
Missouri	29.7	16.7	22.5	18.8	21.7	19.3	54.7	~~~
Montana	15.3	8.3	0.0	7.7	12.5	0.0	~~~	0.0
Nebraska	25.8	8.0	17.6	19.6	29.5	15.6	40.3	~~~
Nevada	21.2	0.0	16.7	22.2	~~~	20.0	25.0	0.0
New Hampshire	8.4	4.8	11.8	6.3	3.0	6.9	~~~	16.7
New Jersey	20.3	20.5	17.9	11.4	18.7	16.5	33.3	30.8
New Mexico	23.2	16.1	29.4	13.2	14.3	11.5	59.3	20.0
New York	29.4	20.8	19.5	22.9	33.5	30.4	39.0	33.3
North Carolina	29.9	13.6	17.0	28.4	27.8	19.5	48.7	31.0
North Dakota	21.6	0.0	12.5	~~~	~~~	0.0	~~~	16.7
Ohio	27.1	17.2	28.2	21.1	23.1	20.6	46.8	22.5
Oklahoma	31.8	~~~	16.0	24.4	31.4	5.3	56.4	~~~
Oregon	20.0	8.9	18.2	13.2	15.6	13.2	51.4	~~~
Pennsylvania	27.8	19.3	17.1	25.1	23.2	23.5	49.2	24.8
Rhode Island	18.3	16.7	15.4	11.5	~~~	14.3	17.6	25.0
South Carolina	28.5	12.5	7.1	31.3	25.0	14.3	44.4	~~~
South Dakota	22.9	0.0	22.2	20.0	~~~	7.1	40.0	16.7
Tennessee	27.6	8.1	33.3	22.0	18.4	18.9	45.5	25.0
Texas	46.7	31.2	48.3	43.5	41.2	41.7	65.1	44.6
Utah	32.1	15.0	11.1	27.7	42.1	36.7	46.4	~~~
Vermont	7.8	8.3	0.0	0.0	11.1	0.0	21.4	0.0
Virginia	23.8	11.8	21.4	18.0	15.8	16.5	52.9	23.1
Washington	24.5	17.2	25.0	24.5	17.3	21.5	46.0	20.0
West Virginia	16.5	10.5	8.7	6.9	14.3	3.7	39.1	0.0
Wisconsin	20.7	9.6	13.3	25.2	22.7	21.1	30.1	18.8
Wyoming	5.6	0.0	0.0	9.1	0.0	0.0	7.1	25.0
Puerto Rico	50.3	55.0	~~~	35.5	60.5	~~~	59.5	~~~

*Includes mathematics and computer sciences.

~~~ Percentages greater than 25% based on frequencies less than 10 were considered spuriously high and have been suppressed.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates
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Table 29. Cumulative debt related to education of doctorate recipients by broad field, 1998

	Group Total		Physical Sciences*		Engineering		Life Sciences		Social Sciences		Humanities		Education		Prof./Other	
Cumulative Debt	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Total	38,147	100	6,094	100	5,340	100	7,748	100	6,145	100	4,991	100	5,775	100	2,054	100
$5,000 or less	3,817	10.0	663	10.9	511	9.6	884	11.4	531	8.6	525	10.5	528	9.1	175	8.5
$5,001-$10,000	3,174	8.3	506	8.3	385	7.2	737	9.5	519	8.4	461	9.2	408	7.1	158	7.7
$10,001-$15,000	2,533	6.6	390	6.4	278	5.2	559	7.2	437	7.1	439	8.8	311	5.4	119	5.8
$15,001-$20,000	2,024	5.3	269	4.4	206	3.9	390	5.0	433	7.0	328	6.6	279	4.8	119	5.8
$20,001-$25,000	1,512	4.0	196	3.2	123	2.3	256	3.3	352	5.7	277	5.5	219	3.8	89	4.3
$25,001-$30,000	1,284	3.4	119	2.0	123	2.3	221	2.9	297	4.8	240	4.8	197	3.4	87	4.2
$30,000+	4,394	11.5	325	5.3	394	7.4	658	8.5	1,331	21.7	697	14.0	669	11.6	320	15.6
No Debt	19,409	50.9	3,626	59.5	3,320	62.2	4,043	52.2	2,245	36.5	2,024	40.6	3,164	54.8	987	48.1

*Includes mathematics and computer sciences.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 30. Cumulative debt related to education of doctorate recipients by demographic group, 1998

	Sex				Citizenship						Race /Ethnicity (U.S. citizens only)									
	Male		**Female**		**U.S. Citizen**		**Perm. Visa**		**Temp. Visa**		**Asian***		**Black**		**Hispanic**		**American Indian†**		**White**	
Cumulative Debt	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
$5,000 or less	2,255	10.2	1,558	9.7	2,667	10.0	210	8.2	865	10.6	93	8.4	154	11.2	109	10.0	24	13.8	2,251	10.1
$5,001-$10,000	1,895	8.6	1,276	8.0	2,500	9.4	160	6.3	453	5.5	115	10.4	127	9.3	105	9.6	15	8.6	2,084	9.3
$10,001-$15,000	1,533	6.9	998	6.2	2,103	7.9	104	4.1	300	3.7	102	9.2	119	8.7	106	9.7	18	10.3	1,729	7.7
$15,001-$20,000	1,145	5.2	879	5.5	1,724	6.5	73	2.9	199	2.4	68	6.1	93	6.8	79	7.2	14	8.0	1,433	6.4
$20,001-$25,000	843	3.8	669	4.2	1,313	4.9	51	2.0	130	1.6	44	4.0	84	6.1	84	7.7	12	6.9	1,067	4.8
$25,001-$30,000	668	3.0	615	3.8	1,107	4.2	45	1.8	121	1.5	36	3.3	82	6.0	64	5.9	11	6.3	899	4.0
$30,000+	2,391	10.8	2,002	12.5	3,556	13.3	169	6.6	616	7.5	126	11.4	306	22.4	198	18.1	28	16.1	2,819	12.6
No Debt	11,400	51.5	7,986	50.0	11,683	43.8	1,741	68.2	5,481	67.1	523	47.2	404	29.5	347	31.8	52	29.9	10,111	45.2

*Includes Pacific Islander.
† Includes Alaskan Native.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 2-1. Doctorate recipients with no indebtedness by sex, citizenship, and race/ethnicity, 1988 and 1998 (by percent)

	1988	1998
Total	52.9	50.9
Sex		
Male	53.1	51.5
Female	52.6	50.0
Citizenship		
U.S. Citizen	45.3	43.8
Non-U.S., Permanent Visa	62.6	68.2
Non-U.S., Temporary Visa	79.3	67.1
Race/Ethnicity (U.S. citizens only)		
Asian*	47.0	47.2
Black	39.5	29.5
Hispanic	33.8	31.8
American Indian†	36.7	29.9
White	45.9	45.2

*Includes Pacific Islander.
†Includes Alaskan Native.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

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Table 2-2. Indebtedness of U.S.-citizen doctorate recipients by sex, field of study, Carnegie class, and institution control type, 1998

	Level of Indebtedness (%)		
	None	$15,000 or Less	More than $15,000
Total, U.S. Citizens	43.8	27.3	28.9
Sex			
Male	43.1	28.8	28.0
Female	44.6	25.6	29.8
Field			
Physical Sciences*	48.4	31.3	20.3
Engineering	53.0	27.5	19.5
Life Sciences	43.6	32.6	23.8
Social Sciences	31.4	24.6	44.1
Humanities	36.4	29.2	34.4
Education	54.3	21.6	24.1
Professional/Other	44.2	22.6	33.2
Carnegie Class			
Research I	43.5	29.5	27.1
Research II	41.2	25.4	33.4
Doctoral I	46.6	21.6	31.9
Doctoral II	49.4	23.0	27.6
Other	43.1	20.5	36.4
Type of Control			
Public	44.3	27.7	28.0
Private	42.8	26.5	30.7

* Includes mathematics and computer sciences.
SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 2-3. Indebtedness of non-U.S. citizen doctorate recipients by sex, field of study, and Carnegie class, 1998

	Level of Indebtedness (%)		
	None	$15,000 or Less	More than $15,000
Total, Non-U.S. Citizens	67.4	19.5	13.1
Sex			
Male	66.1	20.2	13.7
Female	70.5	17.7	11.7
Field			
Physical Sciences*	74.5	17.8	7.7
Engineering	70.2	17.2	12.5
Life Sciences	68.6	19.6	11.8
Social Sciences	56.7	22.8	20.5
Humanities	59.4	25.3	15.3
Education	58.0	21.6	20.4
Professional/Other	58.3	20.5	21.1
Carnegie Class:			
Research I	68.3	19.0	12.7
Research II	64.3	21.8	13.9
Doctoral I	61.4	20.4	18.2
Doctoral II	70.6	18.0	11.4
Other	66.2	22.9	10.9

*Includes mathematics and computer sciences.
SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 2-4. Indebtedness of U.S.-citizen doctorate recipients by primary source of support, 1998

Primary Source of Support	Level of Indebtedness (%)		
	None	$15,000 or less	More than $15,000
Teaching Assistantship	32.7	32.3	35.0
Research Assistantship	40.7	34.6	24.8
Fellowship or Grant	42.4	33.8	23.8
Own Resources	46.7	20.1	33.8
Employer	71.9	17.9	10.2
Other	63.2	18.2	18.6

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 2-5. Indebtedness of U.S.-citizen doctorate recipients by postdoctoral employment, 1998

Postdoctoral Employment	Level of Indebtedness (%)		
	None	$15,000 or less	More than $15,000
Academe	41.7	26.6	31.6
Government	53.4	21.9	24.7
Industry	46.7	26.7	26.6
Other	50.2	24.0	25.9

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 2-6. Indebtedness of U.S.-citizen doctorate recipients by degree and institution control, 1998

Degree/Control	Number	Level of Indebtedness (%)		
		None	$15,000 or less	More than $15,000
Public Bachelor's Degree				
Public Ph.D.	11,617	44.8	27.1	28.1
Private Ph.D.	3,343	43.4	24.6	32.0
Private Bachelor's Degree				
Public Ph.D.	5,991	42.3	29.5	29.2
Private Ph.D.	4,339	41.9	28.3	29.8

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

Table 2-7. Indebtedness of U.S.-citizen doctorate recipients by parental educational attainment, 1998

Education Level	Level of Indebtedness (%) None	 $15,000 or less	 More than $15,000
Total, U.S. Citizens	43.8	27.3	28.9
Father's Education			
High school or less	44.5	25.2	30.2
Some college	41.4	27.9	30.7
Advanced degree	45.5	28.3	26.2
Mother's Education			
High school or less	44.4	25.8	29.8
Some college	42.8	28.3	28.9
Advanced degree	44.8	27.8	27.4
Both Parents			
High school or less	45.5	25.0	29.5
Some college	41.3	28.4	30.3
Advanced degree	46.2	27.8	26.0

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates.

Table 2-8. Indebtedness of U.S.-citizen doctorate recipients by marital status and number of dependents, 1998

		Level of Indebtedness (%)		
	Number of Ph.D.s	None	$15,000 or less	More than $15,000
Marital Status				
Married/marriage-like relationship	16,617	47.5	26.2	26.3
Separated, widowed, or divorced	2,160	36.1	25.0	38.9
Never married	7,623	38.1	30.4	31.6
Number of Dependents				
None	14,439	42.1	28.5	29.4
One	5,224	43.2	27.4	29.3
Two	3,326	47.7	26.7	25.6
Three or More	3,249	47.9	23.1	29.0

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIXES

APPENDIX A: The Seven Basic Tables, 1998

Appendix A includes the following seven tables:

A-1 Number of Doctorate Recipients, by Sex and Subfield, 1998

A-2 Number of Doctorate Recipients, by Citizenship, Race/Ethnicity, and Subfield, 1998

A-3 Statistical Profile of Doctorate Recipients, by Major Field, 1998

A-4 Statistical Profile of Doctorate Recipients, by Race/Ethnicity and Citizenship, 1998

A-5 Sources of Graduate School Support for Doctorate Recipients, by Broad Field and Sex, 1998

A-6 State of Doctoral Institution of Doctorate Recipients, by Broad Field and Sex, 1998

A-7 Institutions Granting Doctorates, by Major Field, 1998

TABLE A-1 and TABLE A-2: Tables A-1 and A-2 display data for the most recent year by subfield of doctorate. Field groupings may differ from those in reports published by Federal sponsors of the Survey of Earned Doctorates (SED). The "general" field categories—e.g., "chemistry, general"—include individuals who either received the doctorate in the general subject area or did not indicate a particular specialty field. The "other" field categories—e.g., "chemistry, other"—include individuals whose specified doctoral discipline was not among the specialty fields listed.

Table A-1 presents data by doctoral specialty and sex. Table A-2 displays doctoral specialty by citizenship and race/ethnicity. For a detailed description of the racial/ethnic variable, see the explanatory note for Table A-4.

TABLE A-3: Table A-3 is composed of three 2-page tables. The first table (A-3a) includes data on *all* research doctorate recipients from the most recent year; the other two tables (A-3b and A-3c) present the same data by sex. Field groupings may differ from those in reports published by Federal sponsors of the SED. Terms requiring definition are as follows:

— *Percentage with Master's*: The percentage of doctorate recipients in a field who received a master's degree in any field before earning the doctorate.

— *Median Age at Doctorate*: One-half received the doctorate at or before this age. A recipient's age is obtained by subtracting the month/year of birth from the month/year of doctorate. (See note on next page.)

— *Median Time Lapse*: "Total Time" refers to the total calendar time elapsed between the month/year of baccalaureate and the month/year of doctorate. "Registered Time" refers to the actual time in attendance at colleges and universities between receipt of the baccalaureate and the doctorate.

> ***NOTE about medians:*** *The method of computing medians has been revised. Beginning with Summary Report 1994,* ***months*** *(of birth, baccalaureate, and doctorate) are included in the calculations; medians presented in earlier reports were based only on years. Some medians would be the same regardless of the method of computation, but the new method generally computes slightly different results than are obtained by the old method. While variation is small (usually one or two decimal places), the reader should consider these differences when comparing medians presented in this report with those in earlier reports.*

— *Postgraduation Plans:* Each year's doctorate recipients provide information on post-graduation employment or study plans in response to items B1 through B9 on the survey form. Since the questionnaire is filled out around the time the doctorate is awarded, a recipient's plans are subject to change. However, comparisons with the longitudinal Survey of Doctorate Recipients (SDR) have shown SED data to be a reasonable indicator of actual employment status in the year following the doctorate, although results vary by sector. (The SDR is a follow-up employment survey of a sample of doctorate recipients in science, engineering, and, until 1995, humanities fields.)

In Table A-3 the postgraduation plans of doctorate recipients are grouped as follows: "Postdoctoral Study Plans" (fellowship, research associateship, traineeship, other), "Planned Employment after Doctorate" (educational institution, industry, etc.), and "Postdoctoral Plans Unknown." These categories include recipients who were still negotiating or seeking positions at the time of survey completion, as well as those whose plans were definite. The sum of these lines equals 100 percent for each column, with allowance for rounding: for example, 28.0 percent of all psychology doctorate recipients had postdoctoral study plans, 54.2 percent planned to be employed, and 17.8 percent did not report their post-graduation plans, totaling 100 percent. The study rows is further subdivided by type of study or appointment (fellowships, research associateships, traineeships, and other study). The percentages in these subdivisions sum to the percent of respondents in the given column who reported plans for postdoctoral study. The employment row is similarly subdivided by type of employer. The percentages for these rows add to percentage of respondents in the given column who planned employment. The category for educational institutions includes elementary and secondary schools as well as colleges and universities, and the category for government includes military service.

The four lines of data beginning with "Definite Postdoctoral Study" distinguish between individuals who had definite postgraduation plans at the time of survey completion (item B1: "Am returning to, or continuing in, predoctoral employment" or "Have signed contract or made definite commitment") and those who were still seeking employment or postdoctoral study (item B1: "Am negotiating with one or more specific organizations," "Am seeking position but have no specific prospects," or "Other"). These four lines, when added to the prior line, "Postdoctoral Plans Unknown," total 100 percent with allowance for rounding. The two lines "Definite Postdoctoral Study" and "Seeking Postdoctoral Study" add to give the percentage for "Postdoctoral Study Plans"; the two lines "Definite Employment" and "Seeking Employment" add to give the percentage for "Planned Employment After Doctorate."

Percentages showing the distribution of doctorate recipients by postdoctoral work activity and region of employment are based only on the number of recipients who had *definite employment commitments* at the time they completed the questionnaire. These percentages exclude recipients who planned postdoctoral study (as described above) and recipients who were still *seeking* employment at the time they completed the questionnaire. (Note that the rows on specific postdoctoral study and employment plans discussed earlier include individuals whose plans were *not definite*.) Revisions to the questionnaire format beginning in 1990 resulted in higher rates of nonresponse to the item on work activity through 1993, when the rate was 15.1 percent. The questionnaire was revised again in 1994, and nonresponse subsequently dropped to 11.9 percent in 1994 and 10.7 in 1995. A final revision in 1995 dropped the nonresponse for this item to just 3.4 percent in 1997.

The U.S. regions of employment shown in Table A-3 include the following states and territories:

New England:	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
Middle Atlantic:	New Jersey, New York, Pennsylvania
East North Central:	Illinois, Indiana, Michigan, Ohio, Wisconsin
West North Central:	Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota
South Atlantic:	Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia
East South Central:	Alabama, Kentucky, Mississippi, Tennessee
West South Central:	Arkansas, Louisiana, Oklahoma, Texas
Mountain:	Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming
Pacific & Insular:	Alaska, California, Hawaii, Oregon, Washington, American Samoa, Guam, Puerto Rico, Trust Territory, Virgin Islands

TABLE A-4: Table A-4 contains data by race/ethnicity and citizenship for selected variables included in Tables A-3 and A-5. Field groupings may differ from those in reports published by Federal sponsors of the SED.

The racial/ethnic question has undergone several revisions over the years. In 1977 it was modified to correspond to a standard question format recommended by the Federal Interagency Committee on Education and adopted by the Office of Management and Budget (OMB) for use in Federally sponsored surveys; an explanation of the effect of these changes is detailed on page 13 of *Summary Report 1977*. (Note: Changes in the OMB guidelines prompted the moving of persons having origins in the Indian subcontinent from the white category to the Asian category.) In 1980 the item was further revised in two ways: (1) the Hispanic category was subdivided into Puerto Rican, Mexican American, and other Hispanic to provide more detail for users of the racial/ethnic data, and (2) respondents were asked to check only one racial category. (Before 1980 doctorate recipients could check more than one category to indicate their race.)

The item was modified again in 1982 to separate the questions on race and ethnicity. Since then respondents have been asked to first check one of the four racial group categories (American Indian, Asian, black, or white) and then indicate whether or not they are Hispanic. In Table A-4, doctorate recipients who reported Hispanic heritage, regardless of racial designation, are included in one of three Hispanic groups: Puerto Rican, Mexican American, or other Hispanic. The remaining survey respondents are then counted in the respective racial groups. (Note: doctorate recipients who checked the category "American Indian or Alaskan Native" are identified as American Indian in this report.)

> ***NOTE about median age and time lapse (to doctorate):*** *The method of computing medians has been revised. Beginning with Summary Report 1994,* ***months*** *(of birth, baccalaureate, and doctorate) are included in the calculations; medians presented in earlier reports were based only on years. Some medians would be the same regardless of the method of computation, but the new method generally computes slightly different results. While variation is small (usually one or two decimal places), the reader should consider these differences when comparing medians presented in this report with those in earlier reports. See explanatory information on Table A-3 for further description.*

In the section of "Doctoral Program Support" a recipient counts in more than one category if support was received from multiple sources. Because a student counts more than once for sources of support, the vertical percentages sum to more than 100 percent. See the explanatory note on Appendix Table A-5 for further detail. (Data on the *primary* source of support for doctorate recipients are presented in the body of the report.)

The other sections in Table A-4 correspond to many of those in Appendix Table A-3. The reader is referred to the explanatory note on Table A-3 for additional information.

TABLE A-5: Table A-5 displays data reported in item A11 on financial resources used in support of the respondent's doctoral program, by broad field and sex of recipient. Field groupings may differ from those in reports published by Federal sponsors of the SED.

A recipient counts in more than one category in Table A-5 if more than one financial resource was reported. Because a student counts once for each of his/her financial resources, the vertical percentages sum to more than 100 percent. (Data on the *primary* financial resources for doctorate recipients are presented in the body of the report.) Please consult Appendix C: Technical Notes for additional information on changes in the coding of Sources of Support/Financial Resources.

TABLE A-6: Table A-6 shows, by broad field and sex, the number of persons receiving a doctorate in the most recent year from institutions in each of the 50 states, the District of Columbia, and Puerto Rico. Field groupings may differ from those in reports published by Federal sponsors of the SED. See appendix E for a description of field groupings as reported in this table; see the questionnaire's Specialties List in appendix D for the names and codes of the subfields included.

TABLE A-7: Table A-7 displays data by doctorate-granting institution and major field. It includes all institutions in the United States (the 50 states, the District of Columbia, and Puerto Rico) that awarded doctoral degrees in the most recent year. Field groupings may differ from those in reports published by Federal sponsors of the SED and from departmental designations at institutions.

APPENDIX TABLE A-1. Number of doctorate recipients, by gender and subfield, 1998

Subfield of Doctorate	Number of Doctorates		
	Total	Men	Women
TOTAL ALL FIELDS*	42,683	24,653	17,856
PHYSICAL SCIENCES	6,739	5,104	1,600
MATHEMATICS	1,177	872	297
Applied Mathematics	265	203	61
Algebra	75	57	18
Analysis & Functional Analysis	130	105	25
Geometry	54	39	15
Logic	16	11	5
Number Theory	46	39	7
Mathematical Statistics	204	141	62
Topology	65	52	13
Computing Theory & Practice	18	15	3
Operations Research	17	11	6
Mathematics, General	163	118	39
Mathematics, Other	124	81	43
COMPUTER SCIENCE	923	763	157
Computer Science	817	696	118
Information Sciences & Systems	106	67	39
PHYSICS & ASTRONOMY	1,584	1,354	223
Astronomy	91	69	22
Astrophysics	117	93	24
Acoustics	18	12	6
Chemical & Atomic/Molecular	99	86	13
Elementary Particles	173	162	11
Fluids	26	26	0
Nuclear	92	81	11
Optics	104	86	18
Plasma & High-Temperature	55	53	2
Polymer	24	20	4
Solid State & Low-Temperature	313	276	37
Physics, General	190	158	29
Physics, Other	282	232	46
CHEMISTRY	2,217	1,510	695
Analytical	384	238	146
Inorganic	287	203	84
Nuclear	5	4	1
Organic	597	437	160
Medicinal/Pharmaceutical	115	68	46
Physical	278	201	77
Polymer	123	83	40
Theoretical	41	31	10
Chemistry, General	286	187	88
Chemistry, Other	101	58	43
EARTH, ATMOS., & MARINE SCI.	838	605	228
Atmospheric Physics & Chemistry	38	31	7
Atmospheric Dynamics	24	16	8
Meteorology	25	19	5
Atmos. Sci./Meteorology, General	22	13	8
Atmos. Sci. Meteorology, Other	16	14	2
Geology	171	131	40
Geochemistry	58	35	22
Geophysics & Seismology	106	85	21
Paleontology	23	16	7
Mineralogy, Petrology	14	9	5
Stratigraphy, Sedimentation	24	20	4
Geomorphology & Glacial Geology	20	12	8
Geological & Related Sci., General	13	8	5
Geological & Related Sci., Other	40	33	7
Environmental Science	73	43	30
Hydrology & Water Resources	35	27	8
Oceanography	94	64	29
Marine Sciences	18	15	3
Misc. Physical Sciences, Other	24	14	9
ENGINEERING	5,919	5,108	769
Aerospace, Aeronautic., Astronautic.	242	227	14
Agricultural	73	68	5
Bioengineering & Biomedical	207	157	50
Ceramic Sciences	24	22	2
Chemical	667	542	119
Civil	587	498	83
Communications	40	34	6
Computer	210	187	22
Electrical, Electronics	1,343	1,206	127
Engineering Mechanics	86	73	13
Engineering Physics	15	12	3
Engineering Science	50	42	8
Environmental Health Engineering	63	46	17
Industrial/Manufacturing	227	187	39
Materials Science	482	404	75
Mechanical	936	849	79
Metallurgical	59	51	7
Mining & Mineral	21	17	4
Nuclear	97	86	10
Ocean	29	29	0
Operations Research	62	47	15
Petroleum	48	42	6
Polymer/Plastics	59	44	15
Systems	68	59	9
Engineering, General	30	23	3
Engineering, Other	194	156	38
LIFE SCIENCES	8,540	4,640	3,876
BIOLOGICAL SCIENCES	5,848	3,298	2,533
Biochemistry	798	448	349
Biomedical Sciences	184	101	79
Biophysics	166	119	47
Biotechnology Research	12	8	4
Bacteriology	13	9	4
Plant Genetics	40	22	18
Plant Pathology	18	10	8
Plant Physiology	61	33	28
Botany, Other	113	58	55
Anatomy	35	27	8
Biometrics and Biostatistics	75	35	39
Cell Biology	299	145	154
Ecology	292	177	114
Developmental Biology/Embryology	127	66	61
Endocrinology	30	16	14
Entomology	138	101	37
Biological Immunology	245	130	115
Molecular Biology	741	414	324
Microbiology	384	214	169
Neuroscience	412	244	168
Nutritional Sciences	137	42	95
Parasitology	15	9	6
Toxicology	156	95	61
Human & Animal Genetics	196	105	91
Human & Animal Pathology	91	56	35
Human & Animal Pharmacology	256	133	121
Human & Animal Physiology	258	158	100
Zoology, Other	111	68	43
Biological Sciences, General	217	133	82
Biological Sciences, Other	228	122	104
HEALTH SCIENCES	1,500	488	1,006
Speech-Lang. Pathology & Audiology	95	20	74
Environmental Health	54	37	17
Health Systems/Services Admin.	63	27	36
Public Health	157	49	107
Epidemiology	166	54	112
Exercise Physiology/Sci., Kinesiology	129	80	49
Nursing	399	17	380
Pharmacy	156	79	75
Rehabilitation/Therapeutic Services	33	11	22
Veterinary Medicine	48	30	18
Health Sciences, General	17	5	12
Health Sciences, Other	183	79	104
AGRICULTURAL SCIENCES	1,192	854	337
Agricultural Economics	155	115	40
Agricultural Business & Management	2	2	0
Animal Breeding & Genetics	18	12	6
Animal Nutrition	45	32	13
Dairy Science	10	8	2
Poultry Science	11	8	3
Fisheries Science & Management	30	22	8
Animal Sciences, Other	60	44	16
Agronomy & Crop Science	96	77	18
Plant Breeding & Genetics	69	55	14
Plant Pathology	66	42	24
Plant Sciences, Other	37	23	14
Food Engineering	13	10	3
Food Sciences, Other	153	87	66
Soil Chemistry/Microbiology	27	20	7
Soil Sciences, Other	74	53	21
Horticulture Science	60	47	13
Forest Biology	20	14	6
Forest Engineering	2	2	0
Forest Management	27	18	9

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-1. Number of doctorate recipients, by gender and subfield, 1998

Subfield of Doctorate	Number of Doctorates		
	Total	Men	Women
Wood Sci. & Pulp/Paper Tech.	25	21	4
Conservation/Renewable Nat. Res.	25	14	11
Forestry & Related Sci., Other	69	53	16
Wildlife/Range Management	55	41	14
Agricultural Sciences, General	8	7	1
Agricultural Sciences, Other	35	27	8
SOCIAL SCIENCES (INCL. PSYCH.)	7,075	3,206	3,838
Anthropology	425	183	239
Area Studies	14	3	11
Criminology	55	33	22
Demography/Population Studies	31	18	13
Economics	973	703	267
Econometrics	25	21	4
Geography	154	105	49
International Relations/Affairs	97	64	33
Political Science and Government	662	418	243
Public Policy Analysis	97	56	41
Sociology	549	243	304
Statistics	60	35	21
Urban Affairs/Studies	75	49	26
Social Sciences, General	30	12	17
Social Sciences, Other	147	58	88
PSYCHOLOGY	3,681	1,205	2,460
Clinical	1,350	376	969
Cognitive & Psycholinguistics	113	62	50
Comparative	6	2	4
Counseling	448	153	295
Developmental and Child	267	57	207
Human/Indv. & Family Development	118	28	90
Experimental	149	84	65
Educational	61	22	39
Family & Marriage Counseling	51	22	28
Industrial & Organizational	189	78	110
Personality	24	9	15
Physiological/Psychobiology	92	43	49
Psychometrics	8	4	4
Quantitative	15	7	8
School	106	25	81
Social	186	69	117
Psychology, General	302	96	205
Psychology, Other	196	68	124
HUMANITIES	5,499	2,814	2,675
History, American	407	257	150
History, Asian	70	48	22
History, European	230	133	97
History/Philosophy of Sci. & Tech.	43	24	19
History, General	86	56	30
History, Other	152	85	67
Classics	84	48	36
Comparative Literature	162	64	98
Linguistics	219	95	123
Speech & Rhetorical Studies	168	85	83
Letters, General	22	11	11
Letters, Other	82	31	51
American Studies	100	48	52
Archeology	34	11	23
Art History/Criticism/Conservation	220	55	165
Music	694	396	294
Philosophy	408	285	120
Religion	327	238	89
Drama/Theater Arts	91	46	45
LANGUAGE & LITERATURE	1,718	722	994
American	388	159	229
English	688	296	392
French	137	50	86
German	106	41	64
Italian	33	14	19
Spanish	207	93	114
Russian	43	15	28
Slavic	15	8	7
Chinese	18	12	6
Japanese	11	6	5
Hebrew	8	4	4
Arabic	9	5	4
Other Language & Literature	55	19	36
Humanities, General	23	11	12
Humanities, Other	159	65	94
EDUCATION	6,559	2,422	4,120
Curriculum & Instruction	885	256	627
Educational Admin. & Supervision	949	402	545
Educational Leadership	1,114	436	678
Educ./Instruct. Media Design	91	45	46
Educ. Stat./Research Methods	56	29	27
Educ. Assess., Test., & Meas.	35	17	18
Educational Psychology	325	112	213
School Psychology	112	31	81
Social/Phil. Found. Of Educ.	129	47	82
Special Education	248	44	204
Counseling Educ./Couns. & Guidance	269	89	180
Higher Educ./Evaluation & Research	430	184	246
Pre-elementary/Early Childhood	54	3	51
Elementary Education	62	15	46
Secondary Education	55	22	32
Adult & Continuing Education	168	59	109
TEACHING FIELDS	951	391	558
Agricultural Education	25	15	10
Art Education	46	15	31
Business Education	30	19	11
English Education	53	12	41
Foreign Languages Education	73	32	41
Health Education	70	13	57
Home Economics Education	8	3	5
Technical/Industrial Arts Education	30	20	10
Mathematics Education	115	37	78
Music Education	94	54	40
Nursing Education	14	0	13
Physical Education and Coaching	108	66	42
Reading Education	77	8	69
Science Education	109	51	57
Social Science Education	15	8	7
Technical Education	18	9	9
Trade & Industrial Education	14	11	3
Teacher Ed./Spec. Acad. & Voc., Other	52	18	34
Education, General	235	82	145
Education, Other	391	158	232
PROFESSIONAL/OTHER FIELDS	2,352	1,359	978
BUSINESS AND MANAGEMENT	1,165	783	374
Accounting	154	92	62
Banking/Financial Support Services	83	65	16
Business Admin. & Management	342	240	98
Business/Managerial Economics	56	43	13
International Business	33	22	11
Mgmt. Info. Sys./Bus. Data Proc.	86	63	21
Marketing Management & Research	143	90	53
Operations Research	57	47	10
Organizational Behavior	103	51	52
Bus. Mgmt./Admin. Serv., General	36	23	13
Bus. Mgmt./Admin. Serv., Other	72	47	25
COMMUNICATIONS	372	161	211
Communications Research	52	17	35
Mass Communications	141	71	70
Communications Theory	48	21	27
Communications, General	62	25	37
Communications, Other	69	27	42
OTHER PROFESSIONAL FIELDS	721	363	356
Architectural Environmental Design	51	30	19
Home Economics	17	4	13
Law	31	18	13
Library Science	34	9	25
Parks/Recreation/Leisure/Fitness	36	28	8
Public Administration	105	57	48
Social Work	236	74	162
Theology/Religious Education	160	123	37
Professional Fields, General	0	0	0
Professional Fields, Other	51	20	31
OTHER/UNKNOWN FIELDS**	94	52	37

*Grand total includes 174 doctorate recipients whose gender was unknown

**Includes 20 doctorate recipients whose doctoral field was unknown.

NOTE: Field groupings may differ from those in reports published by federal sponsors of the Survey of Earned Doctorates.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-2. Number of doctorate recipients by citizenship, race/ethnicity, and subfield, 1998

Subfield of Doctorate	Total Doctorates*	Non-U.S. Citizens Temp. Visas	U.S. Citizens and Non-U.S. with Permanent Visas: Total	American Indian†	Asian‡	Black	White	Puerto Rican	Mexican Amer.	Other Hispanic	Unkn. Race
TOTAL ALL FIELDS	42,683	8,642	30,914	189	2,720	1,586	24,153	299	421	591	955
PHYSICAL SCIENCES	6,739	2,041	4,211	19	544	93	3,297	25	35	51	147
MATHEMATICS	1,177	419	666	3	71	16	522	7	6	14	27
Applied Mathematics	265	110	145	0	17	5	107	3	3	2	8
Algebra	75	23	51	0	3	1	45	0	1	0	1
Analysis & Functional Analysis	130	51	76	0	10	1	61	0	0	1	3
Geometry	54	19	31	1	2	1	26	0	1	0	0
Logic	16	7	8	0	0	0	8	0	0	0	0
Number Theory	46	10	35	0	0	0	32	1	0	0	2
Mathematical Statistics	204	76	121	1	19	2	95	1	0	1	2
Topology	65	21	44	0	5	1	31	0	0	4	3
Computing Theory & Practice	18	11	6	0	0	0	5	1	0	0	0
Operations Research	17	5	11	0	1	0	9	0	0	1	0
Mathematics, General	163	44	64	1	10	1	42	0	1	2	7
Mathematics, Other	124	42	74	0	4	4	61	1	0	3	1
COMPUTER SCIENCE	923	309	551	3	91	14	406	2	3	9	23
Computer Science	817	290	468	3	82	8	345	1	3	6	20
Information Sciences & Systems	106	19	83	0	9	6	61	1	0	3	3
PHYSICS & ASTRONOMY	1,584	499	962	3	124	11	768	2	6	12	36
Astronomy	91	17	65	1	5	0	52	0	0	0	7
Astrophysics	117	28	83	0	8	1	69	1	1	0	3
Acoustics	18	7	9	0	0	0	9	0	0	0	0
Chemical & Atomic/Molecular	99	32	65	0	12	0	47	0	0	1	5
Elementary Particle	173	65	105	0	12	1	89	0	1	2	0
Fluids	26	12	14	0	0	0	13	0	0	1	0
Nuclear	92	21	64	0	3	1	56	1	0	1	2
Optics	104	35	68	0	11	1	53	0	0	2	1
Plasma & High-Temperature	55	13	41	0	7	0	30	0	0	2	2
Polymer	24	10	14	1	3	0	10	0	0	0	0
Solid State & Low-Temperature	313	132	176	0	25	2	143	0	1	1	4
Physics, General	190	56	109	1	19	2	79	0	1	1	6
Physics, Other	282	71	149	0	19	3	118	0	2	1	6
CHEMISTRY	2,217	610	1,455	7	207	43	1,123	9	15	10	41
Analytical	384	105	264	0	35	14	201	4	2	2	6
Inorganic	287	63	213	1	23	2	178	1	4	2	2
Nuclear	5	1	4	0	0	0	4	0	0	0	0
Organic	597	175	407	1	59	10	325	1	4	2	5
Medicinal/Pharmaceutical	115	33	69	0	13	5	46	0	0	0	5
Physical	278	73	200	2	26	6	157	2	3	2	2
Polymer	123	47	72	0	22	3	47	0	0	0	0
Theoretical	41	17	23	1	1	0	20	0	0	0	1
Chemistry, General	286	66	135	2	17	0	100	1	1	1	13
Chemistry, Other	101	30	68	0	11	3	45	0	1	1	7
EARTH, ATMOS., & MARINE SCIENCE	838	204	577	3	51	9	478	5	5	6	20
Atmospheric Physics & Chem.	38	7	29	0	2	0	25	1	0	0	1
Atmospheric Dynamics	24	7	17	0	4	1	11	0	0	0	1
Meteorology	25	6	17	0	2	0	15	0	0	0	0
Atmos.Sci./Meteorology, General	22	7	10	0	1	1	8	0	0	0	0
Atmos.Sci./Meteorology, Other	16	3	12	0	0	0	10	0	0	0	2
Geology	171	39	119	1	3	1	107	0	2	0	5
Geochemistry	58	11	45	2	6	1	34	0	0	2	0
Geophysics & Seismology	106	42	59	0	9	1	44	0	1	0	4
Paleontology	23	7	16	0	0	0	15	1	0	0	0
Mineralogy, Petrology	14	2	11	0	1	0	9	0	0	1	0
Stratigraphy, Sedimentation	24	8	15	0	1	0	14	0	0	0	0
Geomorphology & Glacial Geol.	20	1	19	0	0	0	18	0	0	1	0
Geological & Related Sci., General	13	4	8	0	1	0	6	0	1	0	0
Geological & Related Sci., Other	40	7	29	0	5	1	21	0	0	0	2
Environmental Science	73	17	48	0	7	3	37	0	0	0	1
Hydrology & Water Resources	35	10	25	0	3	0	21	0	0	0	1
Oceanography	94	21	64	0	4	0	54	2	1	2	1
Marine Sciences	18	1	16	0	1	0	13	1	0	0	1
Misc. Physical Sciences, Other	24	4	18	0	1	0	16	0	0	0	1
ENGINEERING	5,919	2,392	3,021	13	555	84	2,160	17	30	63	99
Aerospace, Aeronautic., Astronautic.	242	66	151	0	12	2	125	1	3	1	7
Agricultural	73	37	29	1	3	1	23	0	0	0	1
Bioengineering & Biomedical	207	50	147	1	32	0	110	0	0	1	3
Ceramic Science	24	8	15	1	2	0	12	0	0	0	0
Chemical	667	282	340	3	55	3	258	3	1	6	11
Civil	587	262	258	0	33	8	191	1	5	9	11
Communications	40	20	19	0	11	0	8	0	0	0	0
Computer	210	94	105	1	31	2	64	0	1	4	2

NOTE: Field groupings may differ from those in reports published by federal sponsors of the Survey of Earned Doctorates. See inside the back cover for a description of fields as reported in this table. Refer also to the explanatory note about this table in front of Appendix A.

*Includes 3,127 individuals who did not report their citizenship at time of doctorate. See the "Important Notice" at the front of this packet for discussion of item response rate issues.

†Includes Alaskan Native. ‡Includes Pacific Islander.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-2. Number of doctorate recipients by citizenship, race/ethnicity, and subfield, 1998

Subfield of Doctorate	Total Doctorates*	Non-U.S. Citizens Temp. Visas	U.S. Citizens and Non-U.S. with Permanent Visas								
			Total	American Indian†	Asian‡	Black	White	Puerto Rican	Mexican Amer.	Other Hispanic	Unkn. Race
Electrical, Electronics	1,343	546	673	2	164	21	447	3	6	17	13
Engineering Mechanics	86	36	46	0	7	1	33	1	1	1	2
Engineering Physics	15	4	11	0	1	0	9	0	0	1	0
Engineering Science	50	13	31	0	3	3	21	0	0	1	3
Environmental Health Engineering	63	22	35	0	5	2	25	0	0	1	2
Industrial/Manufacturing	227	113	99	0	11	8	70	3	3	1	3
Materials Science	482	185	266	0	46	10	192	1	4	3	10
Mechanical	936	391	466	2	83	13	335	4	2	10	17
Metallurgical	59	21	32	1	7	0	21	0	0	0	3
Mining & Mineral	21	10	8	0	2	1	5	0	0	0	0
Nuclear	97	30	55	0	5	1	44	0	1	2	2
Ocean	29	9	14	1	3	0	9	0	0	0	1
Operations Research	62	27	32	0	5	2	22	0	1	1	1
Petroleum	58	38	8	0	0	0	6	0	0	1	1
Polymer/Plastics	59	33	24	0	10	0	12	0	0	2	0
Systems	68	21	41	0	6	1	33	0	0	0	1
Engineering, General	30	4	7	0	3	0	4	0	0	0	0
Engineering, Other	194	70	109	0	15	5	81	0	2	1	5
LIFE SCIENCES	8,540	1,946	6,020	25	800	193	4,609	53	79	111	150
BIOLOGICAL SCIENCES	5,848	1,230	4,279	12	658	108	3,226	43	54	72	106
Biochemistry	798	195	554	4	114	13	394	5	8	7	9
Biomedical Sciences	184	35	116	0	32	2	71	2	2	1	6
Biophysics	166	43	117	0	31	1	78	0	1	1	5
Biotechnology Research	12	8	4	0	0	0	4	0	0	0	0
Bacteriology	13	4	9	0	0	1	8	0	0	0	0
Plant Genetics	40	10	29	0	5	0	22	2	0	0	0
Plant Pathology	18	9	8	0	0	0	7	0	0	0	1
Plant Physiology	61	25	33	0	3	1	29	0	0	0	0
Botany, Other	113	26	81	1	8	0	66	2	2	0	2
Anatomy	35	6	27	0	5	0	19	0	0	1	2
Biometrics and Biostatistics	75	31	44	0	15	2	25	0	0	1	1
Cell Biology	299	45	241	1	48	3	165	1	8	10	5
Ecology	292	31	246	1	2	5	231	1	0	2	4
Developmental Biology/Embryology	127	28	98	0	21	2	73	1	0	1	0
Endocrinology	30	8	22	0	1	1	18	0	0	2	0
Entomology	138	39	85	0	7	2	70	1	2	3	0
Biological Immunology	245	37	200	0	26	6	156	2	1	2	7
Molecular Biology	741	194	506	2	103	8	360	5	5	11	12
Microbiology	384	95	276	1	40	6	209	2	3	6	9
Neuroscience	412	70	332	2	58	13	235	3	2	6	13
Nutritional Sciences	137	29	92	0	8	5	75	1	3	0	0
Parasitology	15	4	11	0	1	1	8	1	0	0	0
Toxicology	156	17	134	0	13	4	110	0	4	1	2
Human & Animal Genetics	196	32	153	0	16	3	122	2	2	4	4
Human & Animal Pathology	91	16	69	0	12	1	51	1	1	0	3
Human & Animal Pharmacology	256	63	181	0	36	9	125	3	1	3	4
Human & Animal Physiology	258	48	201	0	26	12	153	2	1	4	3
Zoology, Other	111	8	101	0	3	0	93	1	2	1	1
Biological Sciences, General	217	27	149	0	10	4	119	4	3	2	7
Biological Sciences, Other	228	47	160	0	14	3	130	1	3	3	6
HEALTH SCIENCES	1,500	239	1,116	4	84	62	903	7	15	14	27
Speech-Lang. Pathology & Audiology	95	11	78	1	4	11	62	0	0	0	0
Environmental Health	54	17	30	0	5	0	24	0	0	1	0
Health Systems/Services Admin.	63	8	52	0	5	2	44	0	0	1	0
Public Health	157	19	132	2	13	9	101	1	2	3	1
Epidemiology	166	21	133	0	9	5	110	0	2	3	4
Exercise Physiology/Sci., Kinesiology	129	20	103	0	2	1	95	3	0	1	1
Nursing	399	27	345	1	12	21	295	0	7	2	7
Pharmacy	156	68	77	0	17	4	48	2	1	2	3
Rehabilitation/Therapeutic Services	33	1	31	0	3	2	26	0	0	0	0
Veterinary Medicine	48	13	31	0	2	2	23	0	1	0	3
Health Sciences, General	17	2	14	0	0	2	12	0	0	0	0
Health Sciences, Other	183	32	90	0	12	3	63	1	2	1	8
AGRICULTURAL SCIENCES	1,192	477	625	9	58	23	480	3	10	25	17
Agricultural Economics	155	58	84	0	11	4	63	0	0	2	4
Agricultural Business & Management	2	1	1	0	0	0	0	0	0	1	0
Animal Breeding & Genetics	18	6	9	0	0	0	9	0	0	0	0
Animal Nutrition	45	14	28	1	0	0	25	0	1	0	1
Dairy Science	10	5	3	0	0	0	3	0	0	0	0
Poultry Science	11	7	2	0	1	0	1	0	0	0	0
Fisheries Science & Management	30	7	21	1	2	0	17	0	0	1	0
Animal Sciences, Other	60	18	40	0	3	0	32	0	3	2	0
Agronomy & Crop Science	96	37	42	1	7	2	29	1	0	2	0
Plant Breeding & Genetics	69	29	34	2	3	2	23	0	1	1	2
Plant Pathology	66	35	28	0	3	2	16	2	0	4	1
Plant Sciences, Other	37	21	14	0	0	1	11	0	2	0	0
Food Engineering	13	6	7	0	1	1	5	0	0	0	0
Food Sciences, Other	153	84	61	0	14	3	40	0	1	3	0
Soil Chemistry/Microbiology	27	14	12	0	0	0	12	0	0	0	0
Soil Sciences, Other	74	25	43	0	5	1	33	0	0	3	1
Horticulture Science	60	25	29	0	1	1	25	0	0	1	1
Forest Biology	20	7	13	0	0	1	12	0	0	0	0
Forest Engineering	2	1	1	0	1	0	0	0	0	0	0
Forest Management	27	9	18	0	2	1	14	0	1	0	0

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

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APPENDIX TABLE A-2. Number of doctorate recipients by citizenship, race/ethnicity, and subfield, 1998

Subfield of Doctorate	Total Doctorates*	Non-U.S. Citizens Temp. Visas	U.S. Citizens and Non-U.S. with Permanent Visas: Total	American Indian†	Asian‡	Black	White	Puerto Rican	Mexican Amer.	Other Hispanic	Unkn. Race
Wood Sci. & Pulp/Paper Tech.	25	13	10	0	1	0	8	0	0	1	0
Conservation/Renewable Nat. Res.	25	9	16	0	0	1	12	0	0	2	1
Forestry & Related Sci., Other	69	21	41	2	3	0	33	0	0	0	3
Wildlife/Range Management	55	10	45	2	0	0	41	0	0	1	1
Agricultural Sciences, General	8	3	4	0	0	1	2	0	0	0	1
Agricultural Sciences, Other	35	12	19	0	0	2	14	0	1	1	1
SOCIAL SCIENCES (INCL. PSYCH.)	7,075	912	5,611	42	299	301	4,467	81	89	142	190
Anthropology	425	46	351	5	18	11	272	1	10	10	24
Area Studies	14	4	10	0	1	1	6	0	2	0	0
Criminology	55	7	48	0	1	7	34	1	1	3	1
Demography/Population Studies	31	10	13	0	0	1	11	0	1	0	0
Economics	973	396	480	0	71	18	359	3	4	15	10
Econometrics	25	16	9	0	3	1	4	0	0	1	0
Geography	154	22	114	0	5	3	103	1	0	2	0
International Relations/Affairs	97	16	73	0	8	7	53	1	1	3	0
Political Science and Government	662	71	542	3	26	32	446	2	12	9	12
Public Policy Analysis	97	15	79	0	5	5	63	0	0	3	3
Sociology	549	81	427	3	23	38	337	2	5	7	12
Statistics	60	29	23	0	7	1	14	0	0	1	0
Urban Affairs/Studies	75	17	52	0	7	6	39	0	0	0	0
Social Sciences, General	30	4	24	0	3	1	19	0	0	0	1
Social Sciences, Other	147	27	107	0	7	14	77	1	0	3	5
PSYCHOLOGY	3,681	151	3,259	31	114	155	2,630	69	53	85	122
Clinical	1,350	19	1,251	15	45	56	1,006	28	25	38	38
Cognitive & Psycholinguistics	113	21	88	0	3	0	79	0	1	3	2
Comparative	6	0	6	1	0	0	5	0	0	0	0
Counseling	448	10	423	4	15	30	348	5	7	9	5
Developmental and Child	267	13	249	1	10	11	174	1	2	6	44
Human/Indv. & Family Development	118	13	99	0	5	7	83	1	0	1	2
Experimental	149	8	140	1	6	2	126	0	4	0	1
Educational	61	6	53	0	0	5	43	0	2	1	2
Family & Marriage Counseling	51	2	48	0	0	0	45	0	1	0	2
Industrial & Organizational	189	5	172	2	6	10	137	14	1	1	1
Personality	24	1	23	0	0	5	18	0	0	0	0
Physiological/Psychobiology	92	13	77	1	3	1	67	0	0	3	2
Psychometrics	8	2	6	0	0	0	6	0	0	0	0
Quantitative	15	5	10	0	1	0	7	1	0	1	0
School	106	0	101	0	3	5	90	0	1	1	1
Social	186	17	165	2	7	7	137	1	4	2	5
Psychology, General	302	6	202	4	9	7	143	16	3	7	13
Psychology, Other	196	10	146	0	1	9	116	2	2	12	4
HUMANITIES	5,499	537	4,579	22	218	159	3,820	38	60	103	159
History, American	407	12	387	3	15	22	328	0	6	4	9
History, Asian	70	10	54	0	14	0	37	0	0	0	3
History, European	230	14	215	1	3	1	198	0	0	3	9
History/Philosophy of Sci. & Tech.	43	5	34	0	0	0	31	0	1	0	2
History, General	86	4	51	0	0	2	35	2	1	2	9
History, Other	152	15	130	1	4	10	103	3	4	1	4
Classics	84	12	70	0	2	2	61	0	1	1	3
Comparative Literature	162	29	124	1	11	6	92	2	1	3	8
Linguistics	219	66	136	0	22	4	103	1	1	4	1
Speech & Rhetorical Studies	168	7	153	1	2	2	143	0	3	2	0
Letters, General	22	2	20	0	0	0	19	0	1	0	0
Letters, Other	82	4	76	0	3	3	63	2	1	2	2
American Studies	100	4	94	1	1	16	73	1	1	0	1
Archaeology	34	6	27	0	0	0	25	0	0	0	2
Art History/Criticism/Conservation	220	21	189	0	2	3	169	1	3	1	10
Music	694	95	522	2	53	20	412	3	1	14	17
Philosophy	408	35	323	2	11	7	282	3	1	5	12
Religion	327	27	284	3	18	9	245	2	2	2	3
Drama/Theater Arts	91	7	79	0	0	4	72	0	0	0	3
LANGUAGE & LITERATURE	1,718	148	1,466	7	49	37	1,218	18	32	58	47
American	388	12	374	1	12	21	318	3	10	3	6
English	688	44	597	3	20	11	531	1	8	3	20
French	137	12	119	1	2	2	100	1	1	3	9
German	106	19	84	0	2	0	79	0	0	1	2
Italian	33	7	20	0	0	0	16	0	1	1	2
Spanish	207	40	152	1	4	2	77	13	10	44	1
Russian	43	4	38	0	0	0	36	0	0	0	2
Slavic	15	0	11	1	0	0	9	0	0	0	1
Chinese	18	3	13	0	4	1	8	0	0	0	0
Japanese	11	0	11	0	3	0	8	0	0	0	0
Hebrew	8	1	7	0	0	0	6	0	0	0	1
Arabic	9	0	8	0	1	0	5	0	0	1	1
Other Language & Literature	55	6	32	0	1	0	25	0	2	2	2
Humanities, General	23	0	23	0	0	3	19	0	0	0	1
Humanities, Other	159	14	122	0	8	8	92	0	0	1	13
EDUCATION	6,559	424	5,700	50	180	646	4,390	71	114	97	152
Curriculum & Instruction	885	71	766	7	23	57	613	18	21	15	12
Educational Admin. & Supervision	949	37	867	9	9	129	670	10	14	14	12
Educational Leadership	1,114	23	1,043	8	23	166	755	5	28	15	43

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-2. Number of doctorate recipients by citizenship, race/ethnicity, and subfield, 1998

Subfield of Doctorate	Total Doctorates*	Non-U.S. Citizens Temp. Visas	U.S. Citizens and Non-U.S. with Permanent Visas								
			Total	American Indian†	Asian‡	Black	White	Puerto Rican	Mexican Amer.	Other Hispanic	Unkn. Race
Educ./Instruct. Media Design	91	7	80	0	5	6	67	0	1	0	1
Educ. Stat./Research Methods	56	8	48	0	5	5	36	1	0	1	0
Educ. Assess., Test., & Meas.	35	5	30	0	5	1	23	0	0	0	1
Educational Psychology	325	26	275	1	12	14	227	2	6	5	8
School Psychology	112	5	107	1	0	8	90	3	3	1	1
Social/Phil. Found. Of Educ.	129	13	110	1	6	20	73	0	5	4	1
Special Education	248	18	224	3	9	24	175	2	4	4	3
Counseling Educ./Couns. & Guidance	269	12	246	3	3	25	201	8	3	0	3
Higher Educ./Evaluation & Research	430	22	402	3	15	65	302	4	4	5	4
Pre-elementary/Early Childhood	54	7	47	0	1	6	39	0	0	0	1
Elementary Education	62	5	52	2	2	6	39	0	1	1	1
Secondary Education	55	2	52	0	0	4	27	0	1	1	19
Adult & Continuing Education	168	11	147	2	6	7	124	1	0	5	2
TEACHING FIELDS	951	122	789	7	32	63	636	13	11	14	13
Agricultural Education	25	8	15	2	0	2	11	0	0	0	0
Art Education	46	9	32	1	0	2	26	1	0	1	1
Business Education	30	2	26	1	0	1	23	0	0	1	0
English Education	53	5	48	0	4	8	33	3	0	0	0
Foreign Languages Education	73	19	50	0	8	3	30	3	1	3	2
Health Education	70	2	67	0	3	7	53	0	3	0	1
Home Economics Education	8	0	8	0	0	1	7	0	0	0	0
Technical/Industrial Arts Education	30	1	29	0	1	3	22	0	0	1	2
Mathematics Education	115	12	98	0	3	10	80	0	3	2	0
Music Education	94	7	85	0	2	5	70	0	2	3	3
Nursing Education	14	0	14	0	0	2	11	0	1	0	0
Physical Education and Coaching	108	21	81	1	3	3	71	2	0	0	1
Reading Education	77	6	70	0	1	6	58	2	1	2	0
Science Education	109	18	88	1	5	1	76	2	0	1	2
Social Science Education	15	3	9	0	0	0	9	0	0	0	0
Technical Education	18	3	14	1	0	1	12	0	0	0	0
Trade & Industrial Education	14	2	11	0	1	0	10	0	0	0	0
Teacher Ed./Spec. Acad. & Voc., Other	52	4	44	0	1	8	34	0	0	0	1
Education, General	235	5	121	1	10	15	69	1	4	2	19
Education, Other	391	25	294	2	14	25	224	3	8	10	8
PROFESSIONAL/OTHER FIELDS	2,352	390	1,772	18	124	110	1,410	14	14	24	58
BUSINESS AND MANAGEMENT	1,165	248	841	9	68	44	665	5	3	14	33
Accounting	154	26	124	3	4	6	107	0	0	2	2
Banking/Financial Support Services	83	30	46	0	7	2	36	0	0	0	1
Business Admin. & Management	342	58	247	3	17	14	194	1	1	1	16
Business/Managerial Economics	56	12	41	0	7	1	28	0	1	2	2
International Business	33	9	24	0	2	1	20	0	0	1	0
Mgmt. Info. Sys./Bus. Data Proc.	86	26	52	0	8	2	39	1	0	2	0
Marketing Management & Research	143	33	106	1	11	4	84	2	1	1	2
Operations Research	57	29	26	1	4	0	18	0	0	2	1
Organizational Behavior	103	9	92	0	6	5	77	0	0	1	3
Bus. Mgmt./Admin. Serv., General	36	4	28	0	0	4	21	0	0	0	3
Bus. Mgmt./Admin. Serv., Other	72	12	55	1	2	5	41	1	0	2	3
COMMUNICATIONS	372	43	307	2	14	23	253	2	4	2	7
Communications Research	52	5	47	0	3	2	38	1	2	1	0
Mass Communications	141	28	109	2	6	9	88	0	1	1	2
Communications Theory	48	1	46	0	3	1	40	1	0	0	1
Communications, General	62	6	46	0	1	3	41	0	0	0	1
Communications, Other	69	3	59	0	1	8	46	0	1	0	3
OTHER PROFESSIONAL FIELDS	721	89	596	7	41	42	471	7	6	8	14
Architectural Environmental Design	51	19	24	1	3	1	16	0	1	1	1
Home Economics	17	1	15	0	0	2	11	1	0	0	1
Law	31	13	14	1	1	0	11	0	0	1	0
Library Science	34	2	31	0	3	3	25	0	0	0	0
Parks/Recreation/Leisure/Fitness	36	7	25	0	2	0	18	2	0	1	2
Public Administration	105	11	88	0	3	10	67	0	2	2	4
Social Work	236	17	210	3	12	18	168	3	3	2	1
Theology/Religious Education	160	14	143	1	13	4	121	1	0	1	2
Professional Fields, General	0	0	0	0	0	0	0	0	0	0	0
Professional Fields, Other	51	5	46	1	4	4	34	0	0	0	3
OTHER/UNKNOWN FIELDS	94	10	28	0	1	1	21	0	1	0	4

NOTE: Field groupings may differ from those in reports published by federal sponsors of the Survey of Earned Doctorates.

*Includes 3,127 individuals who did not report their citizenship at time of doctorate. See the "Important Notice" for discussion of item response rate issues.

‡Includes Pacific Islander.

†Includes Alaskan Native.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-3a. Statistical profile of doctorate recipients by major field, 1998

Total all doctorates

		1998 Total	Physics and Astronomy	Chemistry	Earth, Atmos., and Marine Sci.	Mathematics	Computer Sciences	PHYSICAL SCIENCES#	ENGINEERING	Biochemistry	Other Biosciences	Health Sciences	Agricultural Sciences	LIFE SCIENCES
Number in Field		42,683	1,584	2,217	838	1,177	923	6,739	5,919	798	5,050	1,500	1,192	8,540
Men	%	57.8	85.5	68.1	72.2	74.1	82.7	75.7	86.3	56.1	56.4	32.5	71.6	54.3
Women		41.8	14.1	31.3	27.2	25.2	17.0	23.7	13.0	43.7	43.2	67.1	28.3	45.4
Unknown*		0.4	0.4	0.5	0.6	0.7	0.3	0.5	0.7	0.1	0.3	0.4	0.1	0.3
U.S. Citizenship	%	66.1	52.5	57.5	61.2	48.7	50.6	54.3	43.0	57.8	64.7	69.0	44.2	61.9
Non-U.S., Permanent Visa		6.3	8.2	8.1	7.6	7.9	9.1	8.2	8.1	11.7	9.1	5.4	8.2	8.6
Non-U.S., Temporary Visa		20.2	31.5	27.5	24.3	35.6	33.5	30.3	40.4	24.4	20.5	15.9	40.0	22.8
Unknown		7.3	7.8	6.9	6.8	7.8	6.8	7.2	8.5	6.1	5.7	9.7	7.6	6.7
Never Married	%	26.3	38.9	33.4	27.3	36.4	27.2	33.6	31.3	28.9	30.3	19.8	19.3	26.8
Married		53.6	44.8	51.7	56.4	48.1	55.9	50.6	55.0	56.6	53.5	56.5	66.9	56.2
Separated, Divorced		5.9	2.8	2.5	4.4	2.8	4.3	3.1	2.3	2.6	4.0	7.7	4.2	4.6
Marriage-like Relationship		3.8	4.0	3.9	4.1	3.7	2.7	3.7	2.7	4.1	4.4	2.7	1.8	3.7
Widowed		0.3	0.0	0.0	0.1	0.2	0.0	0.0	0.1	0.0	0.1	0.4	0.1	0.1
Unknown		10.1	9.5	8.5	7.6	8.9	9.9	8.9	8.7	7.6	7.7	12.9	7.8	8.6
Median Age at Doct.	Yrs	33.7	30.1	29.6	33.7	30.7	33.2	30.7	31.6	30.4	31.3	38.5	34.6	32.3
Percent with Bacc. In Same Field as Doctorate	%	51.8	69.8	71.3	48.6	65.7	36.3	62.4	71.0	28.3	53.9	43.7	47.6	48.9
Percent with Masters	%	73.5	65.5	38.9	74.3	71.9	81.4	61.1	82.3	33.3	42.9	78.8	85.8	54.3
Median Time Lapse from Bacc. To Doct.														
Total Time	Yrs	10.4	7.6	6.8	10.5	8.0	10.4	8.0	8.9	8.0	8.3	14.8	11.0	9.1
Registered Time		7.3	6.9	6.0	7.5	6.7	7.6	6.7	6.7	6.8	6.9	8.0	7.0	7.0
Postdoctoral Study Plans	%	24.4	47.3	47.5	40.7	24.8	12.6	37.9	18.8	70.6	65.4	16.4	31.7	52.6
Fellowship		12.9	17.0	21.0	17.8	13.3	3.7	16.0	6.0	43.9	40.5	9.9	10.2	31.2
Research Assoc.		9.5	29.3	25.2	22.1	10.0	7.8	20.7	11.5	20.8	19.7	5.1	19.8	17.2
Traineeship		0.8	0.5	0.5	0.7	0.8	0.8	0.6	0.8	1.0	1.2	0.7	1.0	1.1
Other Study		1.1	0.5	0.7	0.1	0.7	0.3	0.5	0.6	4.9	4.0	0.7	0.7	3.0
Planned Employment After Doctorate	%	63.3	41.9	42.2	49.4	63.6	77.2	51.6	70.1	20.4	25.9	68.7	57.1	37.3
Educ. Institution**		32.3	7.1	7.4	15.8	32.6	25.1	15.2	10.7	4.8	9.0	35.9	20.3	14.9
Industry/Business		17.7	26.6	30.2	20.9	22.6	43.6	28.7	48.0	9.4	7.8	11.8	18.0	10.1
Government		4.5	3.4	1.8	5.8	2.9	4.3	3.2	7.0	0.9	2.6	7.9	10.7	4.5
Nonprofit		3.0	0.5	0.3	1.3	1.0	1.2	0.7	1.3	0.5	1.0	6.5	2.7	2.1
Other & Unknown		5.7	4.4	2.5	5.6	4.5	3.0	3.8	3.2	4.9	5.6	6.7	5.4	5.7
Postdoc. Plans Unknown	%	12.4	10.7	10.3	9.9	11.6	10.2	10.6	11.0	9.0	8.7	14.9	11.2	10.2
Definite Postdoc. Study	%	17.7	38.1	38.0	29.5	17.5	9.1	29.4	12.2	55.0	49.7	11.7	19.2	39.3
Seeking Postdoc. Study		6.6	9.3	9.5	11.2	7.3	3.5	8.4	6.6	15.5	15.6	4.7	12.5	13.3
Definite Employment		43.1	26.4	28.6	32.1	42.0	55.7	34.6	49.5	12.0	16.6	50.6	36.6	24.9
Seeking Employment		20.1	15.5	13.6	17.3	21.7	21.6	17.0	20.6	8.4	9.3	18.1	20.6	12.3
Employment Commitments After Doctorate		18,409	418	635	269	494	514	2,330	2,930	96	837	759	436	2,128
Primary Activity+														
R & D	%	31.8	61.5	70.1	47.6	37.9	62.1	57.3	72.0	42.7	36.8	31.1	50.2	37.8
Teaching		36.6	13.9	17.2	24.2	43.9	24.3	24.6	9.7	15.6	23.8	40.7	22.2	29.1
Administration		12.0	1.7	1.3	1.9	0.8	3.1	1.7	2.2	3.1	4.2	8.6	5.0	5.9
Prof. Services		13.8	14.8	6.1	17.5	9.5	7.4	10.0	11.2	17.7	16.2	13.6	15.1	15.1
Other		1.9	3.1	1.4	4.1	2.0	1.6	2.2	2.3	2.1	1.7	1.4	3.4	2.0
Secondary Activity														
R & D	%	34.0	26.8	21.3	34.2	45.5	28.6	30.5	21.3	26.0	27.5	38.1	31.9	32.1
Teaching		17.5	6.7	6.8	13.4	16.4	16.0	11.6	13.9	8.3	15.2	18.1	20.9	17.1
Administration		14.4	16.5	26.5	13.0	5.9	12.5	15.7	19.3	17.7	14.0	15.3	14.2	14.7
Prof. Services		14.2	16.5	15.1	16.7	11.9	12.3	14.2	16.9	12.5	12.5	15.0	14.9	13.9
Other		1.4	0.7	0.8	3.7	0.8	1.2	1.2	1.7	1.0	1.0	1.2	1.6	1.2
No Secondary Activity		14.8	27.8	26.0	14.5	13.8	28.0	22.8	24.3	16.7	12.9	7.8	12.6	11.2
Activity(ies) Unknown	%	3.8	5.0	3.6	4.5	5.7	1.6	3.9	2.6	17.7	17.0	4.6	3.9	9.9
Region of Employment After Doctorate+														
New England	%	6.4	6.7	10.1	3.0	5.3	7.4	7.0	6.3	8.3	7.9	6.2	2.8	6.3
Middle Atlantic		14.2	15.3	21.1	9.3	14.0	19.6	16.9	12.5	16.7	14.5	9.9	7.1	11.4
East No. Central		13.3	12.7	15.3	6.3	16.6	8.4	12.5	11.9	15.6	11.8	14.4	9.9	12.5
West No. Central		6.8	4.1	6.8	2.2	8.5	4.9	5.7	4.4	3.1	6.5	7.9	10.1	7.6
South Atlantic		16.0	12.9	13.4	15.6	16.4	14.8	14.5	11.6	16.7	15.9	18.4	7.8	15.2
East So. Central		4.3	2.4	2.5	1.1	4.7	2.5	2.8	2.5	1.0	3.7	5.4	4.6	4.4
West So. Central		8.4	7.2	6.5	21.2	6.9	6.4	8.4	9.2	7.3	5.5	9.1	6.0	7.0
Mountain		5.3	6.0	3.1	11.5	5.3	3.5	5.2	5.5	6.3	5.1	4.3	7.3	5.4
Pacific & Insular		13.9	25.9	12.4	17.5	9.9	23.9	17.4	22.8	12.5	15.5	10.5	9.9	12.5
U.S., Region Unknown		0.8	0.2	0.6	1.5	0.6	1.0	0.7	0.5	2.1	1.8	1.1	1.1	1.4
Foreign		9.9	5.8	7.1	10.4	11.4	7.0	8.1	12.2	9.4	11.0	11.7	32.8	15.6
Region Unknown		0.7	0.7	1.1	0.4	0.4	0.6	0.7	0.8	1.0	0.8	1.1	0.7	0.9

NOTE: Field groupings may differ from those in reports published by federal sponsors of the Survey of Earned Doctorates. #Physical Sciences includes Mathematics and Computer Sciences, as well as Physics/Astronomy, Chemistry, and Earth/Atmospheric/Marine Sciences

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-3a. Statistical profile of doctorate recipients by major field, 1998

Total all doctorates

Psychology	Economics	Anthropology and Sociology	Political Sci./ International Rel.	Other Social Sciences	SOCIAL SCI. INCL. PSYCH.	TOTAL SCIENCES & ENGINEERING	History	Eng. and Amer. Lang. And Lit.	Foreign Lang. and Lit.	Other Humanities	HUMANITIES	EDUCATION	Business and Management	Other Professional Fields	Other Fields/ Unknown***	PROFESSIONAL/OTHER FIELDS	TOTAL NONSCIENCES
3,681	998	974	759	663	7,075	28,273	988	1,076	642	2,793	5,499	6,559	1,165	1,093	94	2,352	14,390
32.7	72.5	43.7	63.5	55.7	45.3	63.9	61.0	42.3	41.6	53.3	51.2	36.9	67.2	47.9	55.3	57.8	45.7
66.8	27.2	55.7	36.4	43.4	54.2	35.7	39.0	57.7	58.1	46.4	48.6	62.8	32.1	51.9	39.4	41.6	54.0
0.4	0.3	0.5	0.1	0.9	0.4	0.5	0.0	0.0	0.3	0.3	0.2	0.3	0.7	0.2	5.3	0.6	0.3
86.0	41.0	75.2	76.2	64.3	75.1	59.4	84.0	87.9	63.1	73.8	77.1	84.3	65.7	78.2	26.6	69.9	79.3
2.5	8.0	4.7	4.9	6.6	4.2	7.3	4.1	2.3	14.0	6.5	6.1	2.6	6.5	4.4	3.2	5.4	4.4
4.1	41.3	13.0	11.5	20.4	12.9	25.8	6.1	5.2	14.3	11.8	9.8	6.5	21.3	12.1	10.6	16.6	9.4
7.4	9.7	7.1	7.5	8.7	7.8	7.5	5.8	4.6	8.6	7.9	7.0	6.6	6.5	5.3	59.6	8.1	6.9
26.8	32.5	24.4	25.6	24.4	26.9	29.4	24.0	27.5	26.3	28.1	27.1	14.2	20.0	22.9	5.3	20.7	20.2
44.5	51.2	52.4	53.5	55.4	48.5	52.7	56.4	47.7	48.9	49.3	50.2	59.6	57.4	56.7	14.9	55.4	55.4
7.0	3.8	9.3	6.5	6.2	6.7	4.3	7.6	8.6	9.5	6.4	7.4	10.9	7.5	9.1	2.1	8.0	9.1
5.4	3.5	5.4	4.6	4.2	4.9	3.8	4.9	8.2	6.5	5.1	5.8	2.6	3.0	3.1	2.1	3.0	3.9
0.2	0.4	0.1	0.1	0.8	0.3	0.1	0.3	0.4	0.5	0.2	0.3	0.9	0.1	0.8	0.0	0.4	0.6
16.2	8.6	8.3	9.7	9.0	12.7	9.7	6.9	7.6	8.3	10.9	9.2	12.0	12.0	7.4	75.5	12.4	10.9
32.5	31.8	35.1	33.0	36.0	33.2	31.9	34.8	34.4	34.6	35.6	35.1	44.3	36.0	39.3	37.7	37.5	39.2
58.5	56.2	73.9	52.7	21.3	56.2	58.6	51.7	64.1	0.0	49.3	46.9	35.0	33.0	27.9	8.5	29.6	38.7
74.7	71.8	86.1	78.3	87.3	77.5	67.6	83.6	83.7	83.3	82.7	83.2	87.7	79.8	90.9	27.7	82.9	85.3
9.0	9.0	11.0	10.0	12.5	9.9	9.0	11.5	11.0	11.0	12.0	11.6	20.0	12.6	15.3	12.9	13.7	14.9
7.1	7.0	8.7	7.9	8.0	7.5	7.0	8.6	8.4	8.4	8.9	8.7	8.4	7.7	8.0	7.5	8.0	8.4
28.0	6.6	17.6	10.1	13.1	20.2	33.9	9.2	6.6	7.5	6.7	7.2	4.7	3.9	5.8	3.2	4.8	5.7
20.8	2.8	11.2	7.0	7.4	14.2	18.0	6.2	4.9	3.4	4.0	4.5	1.8	1.3	2.0	3.2	1.7	2.8
4.5	2.8	5.0	2.2	4.5	4.1	13.6	1.5	0.3	2.0	1.4	1.3	1.6	2.0	2.4	0.0	2.1	1.5
2.0	0.5	0.6	0.3	0.9	1.3	1.0	0.4	0.2	0.9	0.4	0.4	0.6	0.3	0.6	0.0	0.5	0.5
0.6	0.5	0.7	0.7	0.3	0.6	1.3	1.1	1.2	1.1	0.9	1.0	0.6	0.3	0.7	0.0	0.5	0.8
54.2	82.8	71.3	78.4	73.3	65.0	54.5	80.1	83.4	81.8	79.3	80.5	80.5	82.1	83.7	22.3	80.5	80.6
21.3	41.6	48.0	51.0	38.0	32.6	18.5	59.2	65.5	63.9	56.6	59.7	60.9	60.8	50.3	16.0	54.1	59.4
12.0	18.8	6.9	7.4	14.0	11.9	22.9	6.0	6.5	7.5	8.2	7.4	6.1	13.4	11.9	1.1	12.2	7.6
5.9	13.1	5.2	6.1	8.9	7.1	5.4	2.8	0.7	1.1	1.8	1.7	3.4	2.9	5.4	2.1	4.0	2.8
7.5	3.3	4.4	5.4	6.2	6.1	2.6	2.3	1.2	1.2	4.5	3.1	3.9	1.5	9.4	2.1	5.2	3.8
7.5	5.9	6.7	8.6	6.2	7.2	5.1	9.7	9.4	8.1	8.3	8.7	6.2	3.6	6.7	1.1	4.9	7.0
17.8	10.6	11.2	11.5	13.6	14.8	11.6	10.7	10.0	10.7	14.0	12.2	14.9	13.9	10.5	74.5	14.8	13.7
20.6	4.3	11.1	6.6	8.3	14.3	25.0	5.7	4.6	4.2	4.0	4.5	2.8	2.6	3.1	3.2	2.8	3.4
7.3	2.3	6.5	3.6	4.8	5.9	8.9	3.5	2.0	3.3	2.6	2.7	1.9	1.4	2.7	0.0	1.9	2.2
36.2	61.4	44.0	48.7	51.4	43.6	37.0	44.9	47.1	47.5	48.0	47.2	59.2	68.8	58.6	17.0	62.0	55.1
18.0	21.3	27.2	29.6	21.9	21.4	17.4	35.1	36.2	34.3	31.3	33.3	21.3	13.4	25.1	5.3	18.5	25.5
1,332	613	429	370	341	3,085	10,473	444	507	305	1,341	2,597	3,881	801	641	16	1,458	7,936
19.6	48.6	26.8	24.3	34.3	28.6	49.0	7.2	4.3	4.9	8.5	7.0	5.3	30.8	12.3	25.0	22.6	9.0
19.3	30.5	55.7	55.4	34.3	32.6	23.7	75.5	80.3	83.0	70.8	74.9	40.2	51.9	51.8	43.8	51.8	53.7
5.8	4.2	4.7	5.7	11.1	5.9	3.9	5.6	6.5	2.6	5.3	5.3	39.2	5.6	13.9	6.3	9.3	22.6
50.8	10.1	7.9	7.6	14.1	27.5	16.5	6.8	3.6	4.3	9.3	7.2	11.2	7.9	17.8	18.8	12.3	10.1
1.3	4.1	2.3	4.6	2.6	2.5	2.3	2.0	1.2	2.6	2.1	2.0	1.0	1.7	1.7	6.3	1.8	1.5
28.2	36.5	52.2	51.9	37.2	37.1	30.2	61.3	55.4	65.2	46.8	53.1	26.2	50.2	44.5	43.8	47.6	38.9
20.1	24.8	19.3	20.0	17.9	20.7	16.0	10.4	8.5	8.9	13.0	11.2	22.7	29.8	19.5	18.8	25.2	19.4
17.3	9.0	11.0	10.3	13.8	13.5	15.9	9.7	12.2	10.2	14.4	12.7	13.5	6.4	12.5	12.5	9.1	12.4
15.8	14.2	6.8	4.6	14.4	12.7	14.5	5.4	7.1	4.9	11.0	8.5	19.2	5.7	13.3	12.5	9.1	13.9
1.4	1.1	1.6	2.2	0.6	1.4	1.4	0.5	1.6	0.3	3.3	2.1	1.1	0.2	1.2	0.0	0.7	1.4
13.9	12.1	6.8	8.6	12.6	11.8	17.6	9.9	11.0	8.2	8.2	9.0	14.4	5.7	6.6	12.5	6.2	11.1
3.3	2.3	2.3	2.4	3.5	2.9	4.5	2.9	4.1	2.3	3.4	3.3	2.9	1.9	2.5	0.0	2.1	2.9
6.1	7.8	9.1	6.2	10.3	7.3	6.7	10.4	7.5	7.9	7.6	8.1	4.3	6.8	5.0	12.5	6.0	5.9
18.8	15.2	13.3	16.2	11.7	16.2	14.3	15.1	17.2	19.0	14.7	15.7	12.6	14.8	14.0	6.3	14.3	13.9
12.5	8.0	14.2	10.3	13.2	11.6	12.1	11.7	16.2	15.7	15.7	15.1	14.9	15.8	13.3	6.3	14.6	14.9
8.9	2.6	5.8	4.3	5.3	6.3	5.9	8.1	7.1	8.9	6.4	7.1	9.1	6.5	7.0	0.0	6.7	8.0
15.7	22.0	11.4	23.2	19.6	17.7	14.8	14.6	12.8	13.4	13.6	13.6	20.3	17.8	17.2	18.8	17.5	17.6
3.5	2.4	3.5	4.3	3.5	3.4	3.2	5.2	7.3	5.6	4.3	5.2	6.5	3.5	5.5	6.3	4.4	5.7
8.7	4.2	5.1	8.4	5.6	6.9	7.9	8.8	8.9	3.9	8.1	7.9	9.6	9.9	10.0	6.3	9.9	9.1
6.4	2.8	7.2	3.5	6.2	5.4	5.4	3.6	4.7	3.0	5.7	4.8	6.1	3.4	4.2	6.3	3.8	5.3
15.3	7.8	14.9	10.5	10.3	12.6	16.5	13.3	12.2	10.5	11.6	11.9	9.6	9.5	11.7	12.5	10.5	10.5
0.6	1.0	1.2	1.1	0.6	0.8	0.8	0.7	1.4	0.0	1.1	1.0	0.8	0.5	1.1	0.0	0.8	0.8
3.1	25.8	14.2	10.8	12.9	11.2	11.7	7.9	4.3	11.1	10.7	9.0	5.1	11.0	10.6	25.0	11.0	7.5
0.5	0.3	0.0	1.1	0.9	0.5	0.7	0.7	0.4	1.0	0.5	0.6	1.0	0.8	0.5	0.0	0.6	0.8

*Includes 174 respondents not reporting gender. **Includes 2-year, 4-year, and foreign colleges and universities, medical schools, and elementary/secondary schools.
***Includes 20 respondents whose doctoral field was unknown. +Includes only recipients with definite employment plans.
SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-3b. Statistical profile of doctorate recipients by major field, 1998

Total men

		1998 Total	Physics and Astronomy	Chemistry	Earth, Atmos., and Marine Sci.	Mathematics	Computer Sciences	PHYSICAL SCIENCES#	ENGINEERING	Biochemistry	Other Biosciences	Health Sciences	Agricultural Sciences	LIFE SCIENCES
Total Men		24,653	1,354	1,510	605	872	763	5,104	5,108	448	2,850	488	854	4,640
Men as a Percent of Total Doctorates	%	57.8	85.5	68.1	72.2	74.1	82.7	75.7	86.3	56.1	56.4	32.5	71.6	54.3
U.S. Citizenship	%	59.8	53.2	58.7	59.3	46.2	48.1	53.6	42.5	58.9	62.9	53.7	41.7	57.7
Non-U.S., Permanent Visa		6.7	7.9	7.2	6.8	7.5	8.3	7.5	7.8	10.5	9.3	7.6	7.4	8.9
Non-U.S., Temporary Visa		26.0	31.9	27.7	26.8	39.4	37.9	32.2	41.9	23.2	22.2	26.8	43.2	26.7
Unknown		7.4	7.0	6.3	7.1	6.9	5.8	6.6	7.9	7.4	5.6	11.9	7.7	6.8
Never Married	%	27.1	39.8	32.6	26.1	38.8	30.0	34.4	31.3	29.9	28.9	18.9	14.8	25.3
Married		56.4	45.1	53.5	59.2	47.2	57.0	51.4	56.5	55.1	56.1	58.8	73.3	59.5
Separated, Divorced		3.6	2.7	2.5	3.8	2.6	2.9	2.8	2.0	2.0	3.5	3.1	2.9	3.2
Marriage-like Relationship		3.4	3.8	3.5	3.3	3.4	2.5	3.4	2.4	3.3	3.9	3.1	1.3	3.3
Widowed		0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0
Unknown		9.3	8.6	7.9	7.4	7.9	7.6	8.0	7.8	9.6	7.5	16.2	7.6	8.7
Median Age at Doct.	Yrs	33.1	30.1	29.7	34.0	30.6	32.9	30.8	31.7	30.5	31.7	35.4	35.2	32.3
Percent with Bacc. in Same Field as Doctorate	%	54.0	70.2	71.3	49.6	65.3	38.0	62.4	72.2	30.6	52.4	25.6	49.9	47.0
Percent with Masters	%	73.0	65.0	40.3	75.2	72.8	82.2	62.8	83.3	32.6	45.3	70.9	87.4	54.5
Median Time Lapse from Bacc. To														
Total Time	Yrs	9.9	7.6	6.9	11.0	8.0	10.0	8.0	9.0	7.9	8.5	12.0	11.5	9.0
Registered Time		7.2	6.9	6.0	7.6	6.6	7.5	6.7	6.7	6.8	7.0	7.5	7.0	7.0
Postdoctoral Study Plans	%	25.9	48.4	49.0	41.2	26.6	13.2	38.8	18.7	69.6	65.2	19.3	30.7	54.4
Fellowship		12.5	17.5	21.5	16.7	14.0	3.8	15.9	5.9	43.3	38.6	9.4	10.1	30.7
Research Assoc.		11.5	30.0	26.4	23.5	11.2	8.3	21.7	11.4	20.5	20.9	8.2	18.4	19.1
Traineeship		0.8	0.4	0.5	1.0	0.6	0.8	0.6	0.9	0.7	1.2	1.0	1.4	1.2
Other Study		1.1	0.5	0.7	0.0	0.8	0.4	0.5	0.5	5.1	4.6	0.6	0.8	3.5
Planned Employment After Doctorate	%	62.5	41.7	40.9	48.9	62.8	78.4	51.4	70.8	19.9	26.2	62.7	58.2	35.3
Educ. Institution*		27.7	6.6	6.7	15.2	31.1	23.1	14.3	10.3	4.5	8.5	28.3	20.7	12.4
Industry/Business		22.5	27.5	30.0	22.0	22.9	46.5	29.6	49.2	10.5	8.5	16.0	17.3	11.1
Government		5.2	3.4	1.7	6.0	3.0	4.3	3.3	7.3	0.9	3.0	10.7	11.8	5.2
Nonprofit		2.4	0.4	0.3	0.7	1.0	1.4	0.7	1.4	0.4	0.8	3.1	3.0	1.4
Other & Unknown		4.7	3.8	2.3	5.1	4.8	3.0	2.6	2.7	3.6	5.4	4.7	5.3	5.1
Postdoc. Plans Unknown	%	11.7	9.8	10.1	9.9	10.6	8.4	9.8	10.5	10.5	8.6	18.0	11.1	10.3
Definite Postdoc. Study	%	18.9	39.0	39.3	29.6	19.0	9.4	30.2	12.2	56.5	50.1	14.3	17.9	41.0
Seeking Postdoc. Study		7.0	9.5	9.7	11.6	7.6	3.8	8.6	6.5	13.2	15.1	4.9	12.8	13.4
Definite Employment		43.2	27.1	28.5	32.2	40.9	56.6	34.9	50.3	13.6	17.4	48.2	38.6	24.2
Seeking Employment		19.3	14.6	12.4	16.7	21.9	21.8	16.5	20.5	6.3	8.7	14.5	19.6	11.1
Employment Commitments After Doctorate		10,644	367	431	195	357	432	1,782	2,569	61	497	235	330	1,123
Primary Activity*														
R & D	%	40.6	62.9	74.2	51.8	40.9	65.7	60.7	72.8	42.6	39.0	43.8	53.3	44.4
Teaching		31.2	12.3	13.7	20.0	40.9	21.5	21.4	9.1	11.5	19.3	29.8	21.2	21.6
Administration		9.6	1.6	1.4	2.1	0.8	2.5	1.7	2.3	3.3	4.0	7.7	4.2	4.8
Prof. Services		12.6	15.0	5.3	17.4	9.0	7.2	9.8	11.3	21.3	17.1	10.2	15.2	15.3
Other		2.1	3.0	1.4	4.6	2.0	1.4	2.2	2.0	1.6	1.8	3.0	3.0	2.4
Secondary Activity														
R & D	%	31.9	25.6	19.3	31.8	41.7	27.3	28.4	21.1	24.6	26.2	35.3	31.5	29.6
Teaching		17.9	6.3	7.2	15.9	17.1	16.7	12.2	13.9	11.5	16.7	20.4	22.4	18.9
Administration		15.7	17.4	31.3	12.8	6.2	12.7	16.9	19.9	19.7	15.5	18.7	15.2	16.3
Prof. Services		14.0	18.0	14.8	19.0	13.2	12.0	14.9	17.0	9.8	10.5	13.2	15.5	12.5
Other		1.3	0.5	0.7	3.1	0.8	0.9	1.0	1.8	1.6	0.8	1.3	0.9	1.0
No Secondary Activity		15.5	27.0	23.2	13.8	14.8	28.7	22.6	23.7	14.8	12.1	5.5	11.5	10.7
Activity(ies) Unknown	%	3.7	5.2	3.5	3.6	6.2	1.6	3.9	2.5	18.0	18.3	5.5	3.0	11.1
Region of Employment After Doctorate+														
New England	%	6.3	6.8	10.4	3.1	5.3	7.9	7.2	6.2	4.9	7.2	7.7	2.7	5.9
Middle Atlantic		13.5	15.0	20.9	7.2	13.8	19.0	16.3	12.0	23.0	14.5	8.9	5.8	11.2
East No. Central		12.8	12.3	15.5	5.6	16.9	7.6	12.1	12.1	18.0	10.7	11.9	9.1	10.9
West No. Central		6.4	4.6	7.0	2.6	8.1	4.4	5.6	4.2	4.9	5.6	8.5	9.7	7.4
South Atlantic		14.8	13.1	11.1	16.4	16.0	14.6	13.9	11.6	13.1	16.1	16.6	7.9	13.6
East So. Central		3.9	2.5	2.8	0.5	5.3	1.6	2.7	2.5	1.6	3.2	4.3	5.5	4.0
West So. Central		8.3	7.7	6.0	23.6	6.7	6.3	8.5	9.4	8.2	5.4	9.4	5.2	6.3
Mountain		5.2	6.3	3.5	10.8	4.8	3.5	5.1	5.5	8.2	5.8	4.7	6.7	6.0
Pacific & Insular		15.1	24.6	13.9	17.9	9.8	25.7	18.6	22.8	8.2	16.1	9.8	9.1	12.3
U.S., Region Unknown		0.7	0.3	0.7	0.5	0.6	0.9	0.6	0.6	1.6	2.0	0.9	1.2	1.5
Foreign		12.3	6.3	6.7	11.3	12.1	7.9	8.5	12.4	8.2	12.3	16.6	36.4	20.0
Region Unknown		0.7	0.5	1.4	0.5	0.6	0.7	0.8	0.7	0.0	1.0	0.9	0.9	0.9

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-3b. Statistical profile of doctorate recipients by major field, 1998

Total men

Psychology	Economics	Anthropology and Sociology	Political Sci/ International Rel.	Other Social Sciences	SOCIAL SCI. INCL. PSYCH.	TOTAL SCIENCES & ENGINEERING	History	Eng. and Amer. Lang. And Lit.	Foreign Lang. and Lit.	Other Humanities	HUMANITIES	EDUCATION	Business and Management	Other Professional Fields	Other Fields/ Unknown	PROFESSIONAL/ OTHER FIELDS	TOTAL NONSCIENCES
1,205	724	426	482	369	3,206	18,058	603	455	267	1,489	2,814	2,422	783	524	52	1,359	6,582
32.7	72.5	43.7	63.5	55.7	45.3	63.9	61.0	42.3	41.6	53.3	51.2	36.9	67.2	47.9	55.3	57.8	45.7
84.4	39.8	70.9	73.4	59.9	68.1	54.1	82.1	87.0	64.4	73.9	76.9	81.4	60.2	70.6	17.3	62.5	75.7
2.7	7.6	5.4	4.8	7.6	5.0	7.5	4.6	2.2	10.9	6.0	5.5	2.9	7.0	5.0	3.8	6.1	4.7
5.1	43.9	16.4	13.5	22.5	18.7	31.1	6.3	7.3	16.5	11.2	10.0	8.6	26.1	18.3	13.5	22.6	12.1
7.8	8.7	7.3	8.3	10.0	8.3	7.3	7.0	3.5	8.2	8.9	7.5	7.1	6.8	6.1	65.4	8.8	7.5
25.5	31.1	23.0	24.3	19.5	25.5	29.6	23.4	29.7	31.8	26.5	26.8	12.9	19.7	20.6	3.8	19.4	20.2
48.0	54.0	58.9	55.6	63.7	53.7	55.3	60.2	49.0	45.7	52.8	53.1	66.2	61.3	62.6	9.6	59.8	59.4
5.6	3.3	6.8	5.2	4.9	5.1	3.1	3.3	4.8	6.4	4.2	4.3	6.2	5.1	5.0	1.9	4.9	5.2
6.3	3.7	4.2	4.1	3.5	4.8	3.3	4.8	8.8	7.1	4.6	5.6	2.3	2.0	2.5	0.0	2.1	3.7
0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.2	0.4	0.0	0.3	0.2	0.4	0.0	0.4	0.0	0.1	0.3
14.6	7.6	7.0	10.8	8.4	10.7	8.6	8.1	7.3	9.0	11.6	9.9	12.0	11.9	9.0	84.6	13.5	11.3
33.1	32.2	35.2	33.5	35.8	33.5	32.0	34.7	33.8	34.5	35.6	34.9	43.3	35.9	38.6	34.8	37.0	37.8
57.7	54.6	76.8	55.6	23.0	55.2	59.9	51.6	66.4	0.0	50.5	48.5	29.9	32.2	27.3	5.8	29.3	37.8
74.8	72.9	87.3	77.8	87.5	77.9	69.2	83.1	82.6	80.5	80.7	81.5	87.2	80.2	87.8	21.2	80.9	83.6
9.3	9.3	11.0	10.1	12.0	10.0	8.9	11.2	10.9	10.1	12.0	11.3	18.9	12.3	15.0	9.1	13.1	13.8
7.3	7.0	8.9	8.0	8.1	7.6	7.0	8.3	8.0	8.0	8.6	8.3	8.4	7.6	8.5	8.2	7.9	8.3
25.9	7.3	20.0	11.0	13.0	17.2	33.3	8.8	7.9	8.2	5.8	7.0	4.6	3.7	5.5	1.9	4.3	5.6
18.3	2.9	12.7	6.8	6.8	11.0	16.0	5.5	5.5	4.1	3.3	4.2	1.7	1.3	2.1	1.9	1.6	2.7
5.4	3.3	5.4	2.9	4.9	4.5	15.0	2.2	0.4	1.9	1.2	1.4	1.7	1.9	2.3	0.0	2.0	1.6
1.9	0.6	0.9	0.2	1.1	1.1	0.9	0.3	0.2	1.5	0.3	0.4	0.7	0.4	0.8	0.0	0.5	0.5
0.2	0.6	0.9	1.0	0.3	0.5	1.3	0.8	1.8	0.7	1.0	1.1	0.5	0.1	0.4	0.0	0.2	0.7
58.3	82.3	69.5	75.5	72.9	69.5	56.0	79.9	82.4	81.3	79.9	80.5	80.3	82.6	82.1	15.4	80.5	80.4
23.8	40.7	45.8	49.4	38.2	36.1	16.5	58.0	64.6	61.4	56.7	58.7	60.9	60.2	46.6	9.6	53.0	58.4
13.8	19.2	8.5	7.1	14.6	13.4	27.5	7.0	6.6	8.6	8.3	7.7	6.9	14.9	11.8	1.9	13.2	8.6
7.1	14.0	5.6	8.1	11.1	9.0	5.9	3.3	0.4	1.9	1.6	1.8	3.9	3.1	7.1	0.0	4.5	3.1
8.0	3.0	2.6	4.4	4.3	5.2	1.9	3.0	0.9	1.5	5.1	3.6	3.9	1.3	11.5	0.0	5.2	4.0
5.6	5.4	7.0	6.6	4.6	5.8	4.1	8.6	9.9	7.9	8.2	8.5	4.8	3.2	5.2	0.0	3.8	6.2
15.9	10.4	10.6	13.5	14.1	13.3	10.8	11.3	9.7	10.5	14.3	12.5	15.0	13.7	12.4	86.5	16.0	14.0
18.9	4.8	12.7	7.1	7.3	11.8	24.6	5.3	5.3	4.9	3.0	4.1	2.8	2.4	2.7	1.9	2.5	3.3
7.0	2.5	7.3	3.9	5.7	5.4	8.7	3.5	2.6	3.4	2.8	2.9	1.9	1.3	2.9	0.0	1.8	2.3
41.6	59.9	38.5	45.9	52.3	47.2	38.7	41.8	46.2	46.8	49.4	47.0	61.0	69.9	58.2	9.6	63.1	55.6
16.7	22.4	31.0	29.7	20.6	22.3	17.3	38.1	36.3	34.5	30.5	33.4	19.4	12.8	23.9	1.9	16.6	24.9
501	434	164	221	193	1,513	6,987	252	210	125	736	1,323	1,477	546	305	5	857	3,657
22.4	50.2	28.0	25.8	32.1	32.7	56.5	7.9	2.4	3.2	8.3	6.8	5.1	32.5	10.2	20.0	24.5	10.3
20.0	28.3	51.8	52.5	37.8	32.8	19.4	72.2	82.4	82.4	70.1	73.6	37.2	49.7	53.1	60.0	51.0	53.6
4.8	5.1	4.9	5.9	8.3	5.5	3.2	6.7	5.7	2.4	5.7	5.6	44.3	5.5	13.8	0.0	8.4	21.9
48.3	9.0	9.8	8.1	15.0	22.7	14.0	9.9	4.3	6.4	10.6	9.1	9.4	8.0	19.7	20.0	12.3	10.0
1.6	4.4	3.0	5.0	3.6	3.3	2.4	2.0	1.0	4.0	1.9	2.0	0.9	2.0	2.0	0.0	2.0	1.5
29.3	33.6	51.8	48.0	42.5	37.4	27.9	59.5	54.8	67.2	44.4	51.1	25.9	48.3	41.3	80.0	46.0	39.7
23.2	27.2	24.4	22.2	18.7	23.7	16.4	10.3	7.1	7.2	13.3	11.2	26.3	30.0	19.3	20.0	26.1	20.8
16.8	10.6	8.5	10.0	14.5	12.8	17.0	10.3	16.2	8.8	16.6	14.6	13.8	6.6	16.1	0.0	9.9	13.2
16.4	13.6	5.5	5.0	10.4	12.0	14.7	7.5	5.2	5.6	11.4	9.1	17.7	6.2	14.4	0.0	9.1	12.6
1.0	0.9	2.4	1.8	0.5	1.2	1.3	0.8	1.4	0.0	3.0	2.0	0.9	0.0	1.0	0.0	0.4	1.2
10.4	11.3	5.5	10.4	10.4	10.1	18.4	10.3	11.0	9.6	8.6	9.4	12.6	6.9	6.6	0.0	6.8	10.1
3.0	2.8	1.8	2.7	3.1	2.8	4.3	1.2	4.3	1.6	2.7	2.6	2.8	2.0	1.3	0.0	1.8	2.5
5.8	7.1	5.5	5.4	8.3	6.4	6.4	9.1	10.0	6.4	8.0	8.4	4.3	5.5	4.6	20.0	5.3	6.0
16.4	14.1	9.8	14.9	9.3	13.9	13.4	15.5	17.6	18.4	13.2	14.8	12.9	14.8	11.5	0.0	13.5	13.7
12.6	8.5	16.5	10.4	11.9	11.4	11.8	10.7	16.7	12.8	15.6	14.6	15.2	15.5	12.5	0.0	14.4	14.8
10.4	3.5	5.5	1.8	5.7	6.0	5.5	9.1	6.7	8.8	6.9	7.5	10.1	6.9	5.2	0.0	6.3	8.3
16.4	20.7	11.6	21.3	21.2	18.4	14.0	16.7	13.3	18.4	13.0	14.3	17.5	16.6	18.0	20.0	17.2	16.2
3.6	2.1	3.0	4.1	3.6	3.2	3.0	4.8	7.1	4.8	4.8	5.1	6.8	3.5	5.9	0.0	4.3	5.6
9.6	4.1	5.5	7.7	5.7	6.8	8.1	8.7	8.1	4.8	9.0	8.4	8.2	9.5	10.8	20.0	10.0	8.7
6.0	3.2	7.3	4.1	5.7	5.0	5.4	1.6	3.3	4.8	5.4	4.3	6.1	2.7	3.9	0.0	3.2	4.8
15.0	6.7	15.2	12.7	8.8	11.5	17.6	11.9	10.0	11.2	11.4	11.3	9.6	10.1	10.5	0.0	10.2	10.3
0.2	0.7	1.2	1.4	1.0	0.7	0.8	0.8	1.0	0.0	1.2	1.0	0.5	0.5	0.7	0.0	0.6	0.7
4.0	28.8	18.9	14.9	17.1	16.0	13.4	10.3	6.2	8.0	11.0	9.8	8.0	13.5	16.4	40.0	14.7	10.2
0.2	0.5	0.0	1.4	1.6	0.6	0.7	0.8	0.0	1.6	0.4	0.5	0.8	0.7	0.0	0.0	0.5	0.6

NOTE: Field groupings may differ from those in reports published by federal sponsors of the Survey of Earned Doctorates. #Physical Sciences includes Mathematics and Computer Sciences, as well as Physics/Astronomy, Chemistry, and Earth/Atmospheric/Marine Sciences.

•Includes 2-year, 4-year, and foreign colleges and universities, medical schools, and elementary/secondary schools. +Includes only recipients with definite employment plans

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-3c. Statistical profile of doctorate recipients by major field, 1998

Total women

		1998 Total	Physics and Astronomy	Chemistry	Earth, Atmos., and Marine Sci.	Mathematics	Computer Sciences	PHYSICAL SCIENCES#	ENGINEERING	Biochemistry	Other Biosciences	Health	Agricultural Sciences	LIFE SCIENCES
Total Women		17,856	223	695	228	297	157	1,600	769	349	2,184	1,006	337	3,876
Women as a Percent of Total Doctorates	%	41.8	14.1	31.3	27.2	25.2	17.0	23.7	13.0	43.7	43.2	67.1	28.3	45.4
U.S. Citizenship	%	75.3	50.2	55.8	67.1	57.2	63.7	57.7	48.1	56.4	67.4	76.8	50.7	67.4
Non-U.S., Permanent Visa		5.7	9.9	10.1	10.1	9.1	12.7	10.1	10.0	13.2	8.9	4.4	10.4	8.2
Non-U.S., Temporary Visa		12.4	30.0	27.3	18.0	25.3	12.7	24.6	32.2	26.1	18.4	10.6	32.0	18.2
Unknown		6.6	9.9	6.8	4.8	8.4	10.8	7.6	9.6	4.3	5.4	8.2	6.8	6.1
Never Married	%	25.4	34.5	35.7	31.1	30.3	14.0	31.8	33.3	27.8	32.4	20.4	30.9	28.7
Married		50.2	44.4	48.6	50.4	51.9	51.6	49.2	48.0	58.7	50.4	55.7	50.7	52.6
Separated, Divorced		9.1	3.6	2.6	6.1	3.4	11.5	4.3	4.2	3.4	4.8	10.0	7.4	6.2
Marriage-like Relationship		4.4	4.9	4.7	6.1	4.4	3.8	4.8	4.6	5.2	5.1	2.6	3.0	4.3
Widowed		0.5	0.0	0.0	0.0	0.7	0.0	0.1	0.3	0.0	0.1	0.6	0.0	0.2
Unknown		10.4	12.6	8.3	6.1	9.4	19.1	9.9	9.8	4.9	7.1	10.7	8.0	7.9
Median Age at Doct.	Yrs	34.8	29.9	29.3	32.2	30.8	34.8	30.3	30.4	30.3	30.8	40.8	33.2	32.3
Percent with Bacc. in Same Field as Doctorate	%	49.2	69.1	72.4	46.5	68.7	28.7	63.3	66.1	25.5	56.4	52.7	41.8	51.4
Percent with Masters	%	74.8	69.5	36.3	73.2	70.7	79.0	56.8	79.1	34.4	39.9	83.0	82.2	54.3
Median Time Lapse from Bacc. To														
Total Time	Yrs	11.3	7.5	6.6	9.3	8.3	12.4	7.7	8.0	8.0	8.2	16.3	10.5	9.4
Registered Time		7.6	6.8	6.0	7.4	6.9	8.5	6.5	6.5	6.9	6.7	8.2	7.0	7.0
Postdoctoral Study Plans	%	22.5	42.2	44.6	39.9	20.2	9.6	35.6	20.5	71.9	66.1	15.1	34.4	50.6
Fellowship		13.6	14.8	20.4	20.6	11.4	3.2	16.3	6.6	44.7	43.4	10.2	10.7	32.1
Research Assoc.		6.9	26.0	22.9	18.9	6.7	5.7	18.1	12.7	21.2	18.3	3.6	23.4	15.2
Traineeship		0.8	0.9	0.6	0.0	1.7	0.6	0.8	0.3	1.4	1.2	0.6	0.0	1.0
Other Study		1.1	0.4	0.7	0.4	0.3	0.0	0.5	0.9	4.6	3.2	0.7	0.3	2.4
Planned Employment After Doctorate	%	64.9	43.9	45.8	51.8	67.7	73.2	53.1	68.1	20.9	25.7	71.9	54.6	39.8
Educ. Institution*		38.9	9.9	9.1	17.5	38.0	35.7	18.4	14.0	5.2	9.7	39.8	19.3	17.9
Industry/Business		11.4	22.0	31.1	18.4	22.2	29.9	26.3	42.4	7.7	6.9	9.8	19.9	8.9
Government		3.7	3.6	2.2	5.7	2.7	4.5	3.2	5.6	0.9	2.1	6.6	8.0	3.7
Nonprofit		3.9	0.9	0.4	3.1	1.0	0.0	0.9	0.8	0.6	1.2	8.2	1.8	3.0
Other & Unknown		7.1	7.6	3.0	7.0	3.7	3.2	4.4	5.3	6.6	5.8	7.6	5.6	6.3
Postdoc. Plans Unknown	%	12.7	13.9	9.6	8.3	12.1	17.2	11.3	11.3	7.2	8.2	13.0	11.0	9.6
Definite Postdoc. Study	%	16.3	33.6	35.4	29.4	13.5	7.6	27.5	13.1	53.3	49.6	10.5	22.6	37.5
Seeking Postdoc. Study		6.2	8.5	9.2	10.5	6.7	1.9	8.1	7.4	18.6	16.4	4.6	11.9	13.2
Definite Employment		43.4	22.4	29.4	32.5	46.1	52.2	34.2	46.3	9.7	15.5	52.0	31.5	25.9
Seeking Employment		21.5	21.5	16.4	19.3	21.5	21.0	18.9	21.8	11.2	10.2	19.9	23.1	13.9
Employment Commitments After Doctorate		7,749	50	204	74	137	82	547	356	34	339	523	106	1,002
Primary Activity+														
R & D	%	19.6	50.0	61.3	36.5	29.9	42.7	46.3	66.6	41.2	33.3	25.4	40.6	30.2
Teaching		44.2	26.0	24.5	35.1	51.8	39.0	35.1	13.5	23.5	30.4	45.5	25.5	37.5
Administration		15.2	2.0	1.0	1.4	0.7	6.1	1.8	1.4	2.9	4.4	9.0	7.5	7.1
Prof. Services		15.3	14.0	7.8	17.6	10.9	8.5	10.6	10.7	11.8	15.0	15.1	15.1	15.0
Other		1.7	4.0	1.5	2.7	2.2	2.4	2.2	4.2	2.9	1.5	0.8	4.7	1.5
Secondary Activity														
R & D	%	36.8	36.0	25.5	40.5	55.5	35.4	37.5	22.8	29.4	29.5	39.2	33.0	34.9
Teaching		16.9	10.0	5.9	6.8	14.6	12.2	9.5	13.8	2.9	13.0	17.0	16.0	15.1
Administration		12.5	10.0	16.2	13.5	5.1	11.0	11.7	14.3	14.7	11.8	13.8	11.3	12.9
Prof. Services		14.6	6.0	15.7	10.8	8.8	13.4	12.1	16.0	14.7	15.6	15.9	13.2	15.5
Other		1.5	2.0	1.0	5.4	0.7	2.4	1.8	1.1	0.0	1.2	1.1	3.8	1.4
No Secondary Activity		13.8	32.0	31.9	16.2	10.9	24.4	23.4	28.7	20.6	13.9	8.8	16.0	11.7
Activity(ies) Unknown	%	3.9	4.0	3.9	6.8	4.4	1.2	4.0	3.4	17.6	15.0	4.2	6.6	8.6
Region of Employment After Doctorate+														
New England	%	6.5	6.0	9.3	2.7	5.1	4.9	6.4	7.0	14.7	8.8	5.5	2.8	6.7
Middle Atlantic		15.1	18.0	21.6	14.9	14.6	23.2	18.8	15.7	5.9	14.5	10.3	11.3	11.7
East No. Central		14.0	16.0	14.7	8.1	16.1	12.2	13.9	10.1	11.8	13.6	15.5	12.3	14.4
West No. Central		7.3	0.0	6.4	1.4	9.5	7.3	6.0	5.6	0.0	7.7	7.6	11.3	7.8
South Atlantic		17.7	12.0	18.1	13.5	17.5	15.9	16.5	12.1	23.5	15.6	19.3	7.5	17.0
East So. Central		4.9	2.0	2.0	2.7	2.9	7.3	3.1	2.2	0.0	4.4	5.9	1.5	4.8
West So. Central		8.5	4.0	7.4	14.9	7.3	7.3	8.0	7.3	5.9	5.6	9.0	8.5	7.7
Mountain		5.5	4.0	2.5	13.5	6.6	3.7	5.3	5.6	2.9	4.1	4.2	9.4	4.7
Pacific & Insular		12.4	36.0	9.3	16.2	10.2	14.6	13.7	22.8	20.6	14.7	10.9	12.3	12.7
U.S., Region Unknown		1.0	0.0	0.5	4.1	0.7	1.2	1.1	0.3	2.9	1.5	1.1	0.9	1.3
Foreign		6.5	2.0	7.8	8.1	9.5	2.4	6.9	10.4	11.8	9.1	9.6	21.7	10.8
Region Unknown		0.7	0.0	0.5	0.0	0.0	0.0	0.2	0.8	0.0	0.3	1.0	0.0	0.6

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-3c. Statistical profile of doctorate recipients by major field, 1998

Total women

Psychology	Economics	Anthropology and Sociology	Political Sci./ International Rel.	Other Social Sciences	SOCIAL SCI. INCL. PSYCH.	TOTAL SCIENCES & ENGINEERING	History	Eng. and Amer. Lang. and Lit.	Foreign Lang. and Lit.	Other Humanities	HUMANITIES	EDUCATION	Business and Management	Other Professional Fields	Other Field/ Unknown	PROFESSIONAL/ OTHER FIELDS	TOTAL NONSCIENCES
2,460	271	543	276	288	3,838	10,083	385	621	373	1,296	2,675	4,120	374	567	37	978	7,768
66.8	27.2	55.7	36.4	43.4	54.2	35.7	39.0	57.7	58.1	46.4	48.6	62.8	32.1	51.9	39.4	41.6	54.0
87.2	44.6	79.2	81.2	70.8	81.4	69.7	87.0	88.6	62.2	74.0	77.6	86.3	78.3	85.5	40.5	81.1	82.7
2.4	9.2	4.2	5.1	5.6	3.6	6.9	3.4	2.4	16.4	6.9	6.7	2.4	5.6	3.9	3.1	4.5	4.1
3.6	34.7	10.3	8.0	18.1	8.2	16.5	5.7	3.7	12.9	12.5	9.5	5.2	11.5	6.3	8.1	8.4	7.1
6.8	11.4	6.3	5.8	5.6	6.9	6.9	3.9	5.3	8.6	6.6	6.2	6.1	4.5	4.2	48.6	6.0	6.1
27.6	36.5	25.8	27.9	31.3	28.2	29.4	24.9	25.9	22.5	30.2	27.4	15.0	21.1	25.0	8.1	22.9	20.2
43.1	44.3	47.7	50.0	45.8	44.5	48.6	50.4	46.7	51.2	45.5	47.3	55.9	50.5	51.5	24.3	50.1	52.3
7.7	5.2	11.4	8.7	8.0	8.2	6.5	14.3	11.4	11.8	8.9	10.7	13.6	12.6	12.9	3.1	12.4	12.5
4.9	3.0	6.4	5.4	5.2	5.1	4.7	4.9	7.7	6.2	5.7	6.1	2.8	5.1	3.7	5.4	4.3	4.1
0.3	0.7	0.2	0.4	1.7	0.4	0.3	0.5	0.3	0.8	0.2	0.3	1.1	0.3	1.2	0.0	0.8	0.8
16.4	10.3	8.5	7.6	8.0	13.6	10.5	4.9	7.9	7.5	9.5	8.2	11.6	10.4	5.6	59.5	9.5	10.1
32.2	30.9	34.8	32.3	36.7	32.8	31.9	35.3	34.9	34.8	35.5	35.2	44.8	36.5	39.9	40.9	39.0	40.6
59.3	60.9	72.0	47.8	19.1	57.3	56.6	51.9	62.5	0.0	48.1	45.3	38.1	35.0	28.6	13.5	30.5	39.6
75.2	69.0	85.8	79.3	87.8	77.5	65.4	84.4	84.5	85.8	85.4	85.1	88.3	79.7	94.0	40.5	86.5	87.0
9.0	8.5	11.0	9.9	12.7	9.6	9.0	11.9	11.3	11.4	12.2	11.9	20.6	13.0	15.8	15.7	14.6	16.0
7.0	7.0	8.6	7.8	8.0	7.4	7.0	9.0	8.6	8.5	9.0	9.0	8.4	7.9	8.0	6.8	8.0	8.6
29.1	4.8	15.7	8.7	13.5	22.9	35.4	9.9	5.6	7.0	7.8	7.5	4.7	4.5	6.0	5.4	5.4	5.7
22.2	2.6	9.9	7.2	8.3	17.0	21.9	7.3	4.5	2.9	4.8	4.8	1.9	1.3	1.9	5.4	1.8	2.9
4.1	1.5	4.8	1.1	4.2	3.8	11.1	0.5	0.2	2.1	1.6	1.2	1.5	2.1	2.5	0.0	2.2	1.5
2.0	0.4	0.4	0.4	0.7	1.5	1.1	0.5	0.2	0.5	0.5	0.4	0.5	0.3	0.5	0.0	0.4	0.5
0.8	0.4	0.6	0.0	0.3	0.7	1.3	1.6	0.8	1.3	0.8	1.0	0.7	0.8	1.1	0.0	0.9	0.8
52.6	84.1	73.1	83.7	75.0	61.6	52.4	80.3	84.1	82.3	79.2	80.9	80.8	82.4	85.5	40.5	82.6	81.1
20.2	43.9	50.3	54.0	38.2	29.9	22.3	61.0	66.2	65.7	56.8	60.8	61.1	63.4	54.0	27.0	56.5	60.5
11.2	18.1	5.7	8.0	13.5	10.8	14.9	4.4	6.4	6.7	8.2	7.0	5.6	10.2	12.0	0.0	10.9	6.8
5.4	11.1	5.0	2.5	6.3	5.6	4.5	2.1	1.0	0.5	1.9	1.5	3.1	2.7	3.9	5.4	3.5	2.6
7.4	4.1	5.9	7.2	8.7	7.0	4.0	1.3	1.4	1.1	3.8	2.5	4.0	1.9	7.6	5.4	5.3	3.6
8.5	7.0	6.3	12.0	8.3	8.3	6.7	11.4	9.0	8.3	8.5	9.0	7.0	4.3	8.1	2.7	6.4	7.6
18.3	11.1	11.2	7.6	11.5	15.5	12.2	9.9	10.3	10.7	13.0	11.6	14.5	13.1	8.5	54.1	12.0	13.1
21.6	3.0	9.9	5.8	9.7	16.6	26.1	6.2	4.2	3.8	5.2	4.9	2.8	2.9	3.5	6.3	3.4	3.6
7.6	1.8	5.7	2.9	3.8	6.3	9.3	3.6	1.4	3.2	2.5	2.5	1.9	1.6	2.5	0.0	2.0	2.1
33.8	65.7	48.8	54.0	51.0	40.9	34.5	49.9	47.8	48.0	46.7	47.6	58.3	67.4	59.3	29.7	61.2	55.0
18.8	18.5	24.3	29.7	24.0	20.7	17.9	30.4	36.2	34.3	32.5	33.3	22.5	15.0	26.3	10.8	21.4	26.1
831	178	265	149	147	1,570	3,475	192	297	179	605	1,273	2,402	252	336	11	599	4,274
17.9	44.4	26:0	22.1	36.7	24.5	33.9	6.3	5.7	6.1	8.8	7.3	5.4	27.0	14.3	27.3	19.9	8.0
18.9	36.0	58.1	59.7	29.9	32.4	32.3	79.7	78.8	83.2	71.7	76.2	42.1	57.1	50.6	36.4	53.1	53.8
6.4	2.2	4.5	5.4	15.0	6.3	5.3	4.2	7.1	2.8	4.8	4.9	36.1	6.0	14.0	9.1	10.5	23.3
52.2	12.9	6.8	6.7	12.9	32.1	21.6	2.6	3.0	2.8	7.8	5.2	12.3	7.1	16.1	18.2	12.4	10.2
1.1	3.4	1.9	4.0	1.4	1.8	2.0	2.1	1.3	1.7	2.3	2.0	1.1	1.2	1.5	9.1	1.5	1.4
27.6	43.8	52.5	57.7	30.6	36.8	34.9	63.5	55.9	64.2	49.8	55.3	26.4	54.4	47.3	27.3	49.9	38.3
18.3	19.1	16.2	16.8	17.0	17.8	15.3	10.4	9.4	10.1	12.6	11.2	20.5	29.8	19.6	18.2	23.9	18.2
17.7	5.1	12.5	10.7	12.2	14.2	13.4	8.9	9.4	10.6	11.7	10.6	13.3	6.0	9.2	18.2	8.0	11.8
15.4	15.7	7.5	4.0	19.7	13.4	14.1	2.6	8.4	4.5	10.4	7.9	20.1	4.4	12.2	18.2	9.0	15.0
1.6	1.7	1.1	2.7	0.7	1.5	1.5	0.0	1.7	0.6	3.6	2.2	1.3	0.8	1.5	0.0	1.2	1.5
16.0	13.5	7.5	6.0	15.6	13.3	16.0	9.4	11.1	7.3	7.8	8.7	15.5	3.2	6.5	18.2	5.3	12.1
3.5	1.1	2.6	2.0	4.1	3.0	4.8	5.2	4.0	2.8	4.1	4.1	2.9	1.6	3.6	0.0	2.7	3.2
6.3	9.6	11.3	7.4	12.9	8.2	7.4	12.0	5.7	8.9	7.1	7.8	4.3	9.6	5.4	9.1	7.2	5.7
20.2	18.0	15.5	18.1	15.0	18.5	16.3	14.6	16.8	19.0	16.5	16.7	12.4	14.3	16.4	9.1	15.4	14.1
12.4	6.7	12.8	10.1	15.0	11.8	12.7	13.0	15.8	17.9	15.7	15.6	14.7	16.3	14.0	9.1	14.9	15.0
8.1	0.6	6.0	8.1	4.8	6.6	6.7	6.8	7.4	8.9	5.8	6.8	8.5	5.6	8.6	0.0	7.2	7.8
15.3	25.3	11.3	26.2	17.7	17.0	16.4	12.0	12.5	10.1	14.4	13.0	22.0	20.3	16.4	18.2	18.1	18.8
3.5	3.4	3.8	4.7	3.4	3.6	3.7	5.7	7.4	6.1	3.8	5.3	6.4	3.6	5.1	9.1	4.5	5.8
8.2	4.5	4.9	9.4	5.4	7.1	7.4	8.9	9.4	3.4	6.9	7.3	10.4	10.8	9.2	0.0	9.7	9.4
6.6	1.7	7.2	2.7	6.8	5.8	5.4	6.3	5.7	1.7	6.0	5.3	6.1	4.8	4.5	9.1	4.7	5.7
15.5	10.7	14.7	7.4	12.2	13.8	14.4	15.1	13.8	10.1	11.7	12.5	9.7	8.4	12.8	18.2	11.0	10.7
0.8	1.7	1.1	0.7	0.0	0.9	1.0	0.5	1.7	0.0	1.0	0.9	1.0	0.4	1.5	0.0	1.0	1.0
2.5	18.0	11.3	4.7	6.8	6.4	8.1	4.7	3.0	13.4	10.4	8.2	3.4	5.6	5.4	18.2	5.7	5.1
0.6	0.0	0.0	0.7	0.0	0.4	0.5	0.5	0.7	0.6	0.7	0.6	1.1	0.4	0.9	0.0	0.7	0.9

NOTE: Field groupings may differ from those in reports published by federal sponsors of the Survey of Earned Doctorates. #Physical Sciences includes Mathematics and Computer Sciences, as well as Physics/Astronomy, Chemistry, and Earth/Atmospheric/Marine Sciences..

*Includes 2-year, 4-year, and foreign colleges and universities, medical schools, and elementary/secondary schools.

+Includes only recipients with definite employment plans. SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-4. Statistical profile of doctorate recipients, by race/ethnicity and citizenship, 1998

						American Indian†	Asian‡				Black			
				Non-U.S.					Non-U.S.				Non-U.S.	
		Total*	U.S.	Perm.	Temp.	Total	Total	U.S.	Perm.	Temp.	Total*	U.S.	Perm.	Temp.
Total Number		42,683	28,218	2,696	8,642	189	8,575	1,168	1,552	5,388	1,903	1,467	119	254
Male	%	57.8	52.3	61.6	74.3	55.0	70.3	55.1	63.5	75.4	43.1	35.4	73.1	68.5
Female		41.8	47.7	37.8	25.6	45.0	29.5	44.9	36.0	24.5	56.8	64.6	26.1	31.5
Doctoral Field														
Physical Sciences++	%	15.8	13.0	20.4	23.6	10.1	21.4	16.3	22.8	22.5	7.4	5.6	9.2	16.1
Engineering		13.9	9.0	17.7	27.7	6.9	28.2	20.9	20.0	32.3	6.0	5.2	6.7	9.4
Life Sciences		20.0	18.7	27.2	22.5	13.2	25.4	24.9	32.8	23.3	15.0	11.1	25.2	30.3
Social Sciences		16.6	18.8	11.1	10.6	22.2	9.8	14.7	8.2	8.8	18.8	18.9	20.2	18.5
Humanities		12.9	15.0	12.5	6.2	11.6	5.1	9.6	6.8	3.7	9.7	10.2	7.6	7.1
Education		15.4	19.6	6.3	4.9	26.5	5.2	8.7	5.0	4.4	37.0	42.2	22.7	16.5
Professional/Other		5.5	5.8	4.7	4.5	9.5	4.8	4.9	4.3	4.9	6.2	6.8	8.4	2.0
Median Age at Doct.	Yrs	33.7	34.3	34.2	32.3	36.1	32.7	30.7	34.2	32.4	38.4	39.2	38.4	37.1
Median Time Lapse From Bacc. to Doct.														
Total Time	Yrs	10.4	10.7	11.4	9.5	11.3	10.0	8.2	12.2	9.9	13.5	14.0	11.5	12.1
Registered Time		7.3	7.5	7.9	7.0	7.5	7.2	7.0	8.0	7.0	7.7	7.9	7.5	7.4
Doctoral Program Support**														
Teaching Assistantships	%	17.8	16.1	22.8	21.4	13.8	19.3	12.9	21.3	19.9	10.0	6.8	20.4	22.9
Res. Assistantships/Traineeships		26.5	20.5	37.7	42.1	15.6	45.9	32.2	47.1	49.0	12.2	8.7	23.3	25.1
Fellowships/Dissertation Grants		16.3	17.4	14.2	13.6	24.0	13.2	26.4	12.6	10.6	30.1	30.8	21.4	29.5
Own Resources		32.2	40.1	20.2	11.3	41.9	15.1	24.2	14.9	13.0	39.3	46.1	27.2	9.7
Foreign Government		2.5	0.1	2.1	9.7	0.6	4.6	0.3	1.7	6.0	1.6	0.0	1.9	10.1
Employer		3.1	4.0	1.7	1.1	3.0	1.1	2.0	1.7	0.8	4.8	5.7	3.9	0.0
Other	%	1.6	1.8	1.3	0.9	1.2	0.8	2.0	0.6	0.6	2.0	1.9	1.9	2.6
Postdoctoral Plans														
Postdoc study plans		24.4	22.0	31.6	36.0	17.5	35.0	33.1	34.7	36.2	18.2	15.1	26.9	31.1
Postdoc employment plans		63.3	70.5	61.4	57.5	72.0	58.2	59.8	59.8	57.7	70.6	74.3	62.2	60.6
Educ. Institution #	%	32.3	39.2	22.8	21.7	40.2	18.6	21.6	17.0	18.3	44.7	48.6	33.6	33.1
Industry/Business		17.7	15.8	27.0	25.9	12.7	29.8	23.5	32.3	31.1	10.0	9.5	17.6	9.8
Government		4.5	4.9	2.8	4.7	5.3	4.1	4.5	2.7	4.3	5.6	5.6	1.7	7.9
Nonprofit		3.0	3.8	2.9	1.4	2.6	1.7	2.8	2.8	1.2	3.8	3.9	2.5	3.9
Other/Unknown		5.7	6.7	5.9	3.9	11.1	4.0	7.4	4.9	2.9	6.6	6.7	6.7	5.9
Postdoc plans unknown	%	12.4	7.5	7.1	6.6	10.6	6.7	7.0	5.5	6.0	11.1	10.6	10.9	8.3
Definite Postdoc. Study	%	17.7	16.9	21.4	24.1	10.1	23.4	23.9	23.3	24.0	10.8	9.4	13.4	15.4
Seeking Postdoc. Study		6.6	5.0	10.1	11.9	7.4	11.7	9.2	11.3	12.2	7.5	5.7	13.4	15.7
Definite Employment		43.1	49.4	36.1	37.0	45.5	36.0	40.8	35.6	35.5	45.9	49.2	31.9	38.2
Seeking Employment		20.1	21.1	25.2	20.5	26.5	22.3	19.0	24.2	22.3	24.8	25.1	30.3	22.4
Employment Location														
After Doctorate+		18,409	13,935	974	3,196	86	3,085	477	552	1,911	873	722	38	97
U.S.	%	89.4	97.1	90.1	59.9	97.7	75.5	93.7	90.9	68.4	88.9	98.2	81.6	33.0
Foreign		9.9	2.2	8.9	39.4	2.3	23.7	4.4	8.2	31.0	10.0	0.8	13.2	66.0
Unknown	%	0.7	0.7	0.9	0.7	0.0	0.8	1.9	0.9	0.5	1.1	1.0	5.3	1.0

NOTE: Field groupings may differ from those in reports published by federal sponsors of the Survey of Earned Doctorates.
*Includes 174 individuals who did not report their gender and 3,127 individuals who did not report their citizenship at time of doctorate.
**In this table a recipient counts once in each source category from which he or she received support. This question and its response categories changed in 1998. Please refer to Appendix C technical notes for details. Since students indicate multiple sources of support, the vertical percentages sum to more than 100 percent. (Data on the "primary" source of support for doctorate recipients are presented in the Summary Report.)
#Includes 2-year, 4-year, and foreign colleges and universities, medical schools, and elementary/secondary schools.
+Includes only recipients with definite employment plans.
‡Includes Pacific Islander.
†Includes Alaskan Native.
++ Includes mathematics and computer sciences.

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-4. Statistical profile of doctorate recipients, by race/ethnicity and citizenship, 1998, continued

White				Puerto Rican	Mexican American				Other Hispanic				Unknown Race			
		Non-U.S.					Non-U.S.				Non-U.S.				Non-U.S.	
Total*	U.S.	Perm.	Temp.	Total	Total*	U.S.	Perm.	Temp.	Total*	U.S.	Perm.	Temp.	Total*	U.S.	Perm.	Temp.
26,760	**23,338**	**815**	**2,239**	**299**	**468**	**406**	**15**	**39**	**1,099**	**485**	**106**	**451**	**3,390**	**866**	**89**	**271**
54.9	53.0	56.3	73.1	41.8	54.9	51.7	60.0	82.1	61.2	55.9	58.5	69.2	57.9	58.7	66.3	73.8
45.1	47.0	43.7	26.8	58.2	45.1	48.3	40.0	17.9	38.6	43.9	41.5	30.6	37.7	39.8	24.7	25.8
14.9	13.5	19.4	28.6	8.4	9.0	8.6	0.0	15.4	11.4	8.7	8.5	15.5	16.4	14.8	21.3	26.6
10.1	8.7	16.2	21.6	5.7	7.9	6.9	13.3	12.8	14.2	11.3	7.5	19.3	13.9	9.5	19.1	18.5
18.9	19.1	18.0	17.0	17.7	22.4	18.0	40.0	59.0	23.9	17.7	23.6	31.0	16.5	15.6	16.9	25.5
18.0	18.6	14.8	12.8	27.1	19.9	21.4	13.3	7.7	21.1	25.8	16.0	16.0	17.9	21.0	9.0	10.0
15.4	15.7	19.6	11.0	12.7	13.0	13.5	33.3	2.6	15.4	13.2	36.8	12.0	13.6	16.2	21.3	6.6
17.0	18.6	6.9	4.7	23.7	24.8	28.1	0.0	2.6	10.6	19.0	4.7	3.5	15.1	17.0	5.6	7.4
5.7	5.9	5.0	4.2	4.7	3.0	3.4	0.0	0.0	3.5	4.3	2.8	2.7	6.5	6.0	6.7	5.5
33.8	34.2	33.8	31.6	36.5	35.1	34.6	36.3	37.3	34.8	35.0	36.2	34.3	34.0	34[illegible]	33.5	32.5
10.3	10.7	10.0	8.2	13.2	10.1	10.0	9.8	11.0	10.3	10.5	11.3	9.9	10.3	10.7	11.3	8.9
7.3	7.5	7.2	6.6	8.5	7.3	7.3	8.9	6.0	7.2	7.8	8.0	6.8	7.3	7.5	7.5	7.0
18.0	17.0	24.5	25.1	9.3	12.6	12.2	28.6	11.4	18.7	13.8	33.3	19.7	18.9	16.2	19.2	22.0
22.2	21.1	25.5	32.7	13.3	12.4	13.2	14.3	5.7	17.9	12.9	17.2	23.4	24.5	20.8	28.8	31.5
15.6	15.4	15.8	17.6	29.4	27.3	28.9	21.4	14.3	22.0	27.0	16.2	18.0	19.2	21.2	15.4	19.0
37.4	40.6	27.8	8.4	40.7	36.6	40.6	21.4	5.7	24.5	39.4	28.3	9.5	26.5	36.3	25.0	5.0
1.4	0.1	2.7	13.7	0.0	8.4	2.3	7.1	62.9	12.0	0.7	3.0	24.8	6.2	0.4	1.9	19.0
3.7	4.0	1.4	1.5	4.0	1.6	1.5	7.1	0.0	3.0	3.9	0.0	2.9	2.5	3.4	3.8	1.0
1.7	1.8	2.2	1.1	3.2	1.1	1.3	0.0	0.0	1.9	2.3	2.0	1.7	2.2	1.8	5.8	2.5
23.6	22.2	28.5	37.8	14.4	23.7	22.7	40.0	28.2	25.6	22.5	26.4	29.7	7.6	14.4	16.9	31.0
69.8	71.8	66.3	57.2	67.2	71.4	72.2	53.3	69.2	63.5	67.0	64.2	61.4	18.1	44.1	40.4	43.5
38.3	40.1	30.1	25.9	39.1	47.0	48.0	26.7	38.5	35.8	37.1	44.3	33.0	8.3	20.1	16.9	21.8
16.6	16.3	22.6	19.5	10.0	9.0	9.1	13.3	7.7	12.2	12.4	8.5	13.7	4.6	10.7	11.2	12.5
4.8	4.9	2.6	4.4	6.0	6.4	5.2	6.7	20.5	6.6	6.2	4.7	7.3	1.5	3.3	4.5	4.4
3.7	4.0	3.4	1.4	3.3	3.0	3.4	0.0	0.0	3.2	4.3	0.9	2.7	0.6	1.5	2.2	0.7
6.5	6.5	7.6	6.0	8.7	6.0	6.4	6.7	2.6	5.8	7.0	5.7	4.7	3.1	8.4	5.6	4.1
6.5	5.9	5.3	5.0	18.4	4.9	5.2	6.7	2.6	10.9	10.5	9.4	8.9	74.3	41.5	42.7	25.5
18.2	17.4	20.0	27.2	11.4	17.7	17.0	26.7	23.1	16.8	16.1	18.9	18.2	5.3	10.6	14.6	19.2
5.4	4.8	8.5	10.7	3.0	6.0	5.7	13.3	5.1	8.7	6.4	7.5	11.5	2.3	3.8	2.2	11.8
49.0	50.8	39.3	39.1	45.8	50.2	49.8	53.3	56.4	44.9	47.6	34.0	45.5	11.1	25.9	22.5	31.7
20.8	21.0	27.0	18.1	21.4	21.2	22.4	0.0	12.8	18.7	19.4	30.2	16.0	7.0	18.2	18.0	11.8
13,124	**11,856**	**320**	**875**	**137**	**235**	**202**	**8**	**22**	**493**	**231**	**36**	**205**	**376**	**224**	**20**	**86**
93.8	97.3	90.0	53.4	97.8	86.4	95.5	100.0	9.1	65.7	91.8	88.9	36.1	77.1	93.8	85.0	38.4
5.5	2.0	9.4	45.6	2.2	13.2	4.0	0.0	90.9	33.5	6.9	11.1	63.4	20.2	3.1	15.0	61.6
0.7	0.6	0.6	1.0	0.0	0.4	0.5	0.0	0.0	0.8	1.3	0.0	0.5	2.7	3.1	0.0	0.0

APPENDIX TABLE A-5. Doctorate recipients' financial resources in support of doctoral programs, by broad field and sex, 1998

Financial Resource		Total#		Physical Sciences*		Engineering		Life Sciences		Social Sciences		Humanities		Education		Prof/Other Fields	
		Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Loans (from any source)	N	5,292	4,653	719	234	616	74	879	713	1,053	1,400	1,022	913	663	1,033	340	286
	V	25.1%	30.7%	15.8%	16.5%	14.2%	11.2%	22.7%	21.5%	38.4%	44.1%	40.7%	37.8%	33.7%	31.2%	30.2%	34.0%
	H	100.0%	100.0%	13.6%	5.0%	11.6%	1.6%	16.6%	15.3%	19.9%	30.1%	19.3%	19.6%	12.5%	22.2%	6.4%	6.1%
Foreign (non-U.S.) Support	N	2,012	763	341	69	593	68	362	182	271	143	224	182	94	86	127	33
	V	9.5%	5.0%	7.5%	4.9%	13.7%	10.3%	9.4%	5.5%	9.9%	4.5%	8.9%	7.5%	4.8%	2.6%	11.3%	3.9%
	H	100.0%	100.0%	16.9%	9.0%	29.5%	8.9%	18.0%	23.9%	13.5%	18.7%	11.1%	23.9%	4.7%	11.3%	6.3%	4.3%
Fellowship. Scholarship	N	8,668	6,504	1,812	605	1,494	296	1,785	1,645	1,260	1,412	1,422	1,344	442	847	453	355
	V	41.1%	43.0%	39.9%	42.6%	34.5%	44.8%	46.1%	49.7%	45.9%	44.4%	56.7%	55.7%	22.5%	25.6%	40.3%	42.2%
	H	100.0%	100.0%	20.9%	9.3%	17.2%	4.6%	20.6%	25.3%	14.5%	21.7%	16.4%	20.7%	5.1%	13.0%	5.2%	5.5%
Dissertation Grant	N	1,952	2,096	217	74	117	37	320	401	468	612	610	582	95	253	125	137
	V	9.3%	13.8%	4.8%	5.2%	2.7%	5.6%	8.3%	12.1%	17.1%	19.3%	24.3%	24.1%	4.8%	7.6%	11.1%	16.3%
	H	100.0%	100.0%	11.1%	3.5%	6.0%	1.8%	16.4%	19.1%	24.0%	29.2%	31.3%	27.8%	4.9%	12.1%	6.4%	6.5%
Teaching Assistant	N	13,226	8,861	3,676	1,155	2,345	392	1,819	1,635	2,047	2,172	2,041	1,992	554	971	744	544
	V	62.7%	58.5%	81.0%	81.3%	54.1%	59.4%	47.0%	49.4%	74.6%	68.4%	81.3%	82.5%	28.2%	29.3%	66.1%	64.6%
	H	100.0%	100.0%	27.8%	13.0%	17.7%	4.4%	13.8%	18.5%	15.5%	24.5%	15.4%	22.5%	4.2%	11.0%	5.6%	6.1%
Research Assistant	N	9,935	5,685	2,766	839	2,772	409	2,023	1,629	1,103	1,347	535	557	322	587	414	317
	V	47.1%	37.6%	60.9%	59.1%	64.0%	62.0%	52.3%	49.2%	40.2%	42.4%	21.3%	23.1%	29.9%	0.0%	28.2%	37.6%
	H	100.0%	100.0%	27.8%	14.8%	27.9%	7.2%	20.4%	28.7%	11.1%	23.7%	5.4%	9.8%	5.9%	0.0%	3.2%	5.6%
Traineeship	N	863	1,010	85	48	74	22	510	576	149	293	21	23	13	35	11	13
	V	4.1%	6.7%	1.9%	3.4%	1.7%	3.3%	13.2%	17.4%	5.4%	9.2%	0.8%	1.0%	0.7%	1.1%	1.0%	1.5%
	H	100.0%	100.0%	9.8%	4.8%	8.6%	2.2%	59.1%	57.0%	17.3%	29.0%	2.4%	2.3%	1.5%	3.5%	1.3%	1.3%
Internship or Residency	N	958	1,134	156	39	239	22	78	52	348	805	44	50	65	143	28	23
	V	4.5%	7.5%	3.4%	2.7%	5.5%	3.3%	2.0%	1.6%	12.7%	25.3%	1.8%	2.1%	3.3%	4.3%	2.5%	2.7%
	H	100.0%	100.0%	16.3%	3.4%	24.9%	1.9%	8.1%	4.6%	36.3%	71.0%	4.6%	4.4%	6.8%	12.6%	2.9%	2.0%
Personal Savings	N	8,540	6,978	1,402	427	1,513	208	1,433	1,327	1,225	1,530	1,216	1,057	1,194	1,981	557	448
	V	40.5%	46.1%	30.9%	30.1%	34.9%	31.5%	37.0%	40.1%	44.7%	48.2%	48.4%	43.8%	60.8%	59.8%	49.4%	53.2%
	H	100.0%	100.0%	16.4%	6.1%	17.7%	3.0%	16.8%	19.0%	14.3%	21.9%	14.2%	15.1%	14.0%	28.4%	6.5%	6.4%
Other Personal Earnings During Graduate School	N	6,844	6,447	917	261	907	116	860	894	1,187	1,568	1,376	1,293	1,091	1,879	506	436
	V	32.5%	42.6%	20.2%	18.4%	20.9%	17.6%	22.2%	27.0%	43.3%	49.4%	54.8%	53.6%	55.5%	56.7%	45.0%	51.8%
	H	100.0%	100.0%	13.4%	4.0%	13.3%	1.8%	12.6%	13.9%	17.3%	24.3%	20.1%	20.1%	15.9%	29.1%	7.4%	6.8%
Family Earnings or Savings‡	N	7,328	6,807	1,179	415	1,148	200	1,338	1,322	1,183	1,628	1,195	1,202	835	1,641	450	399
	V	34.8%	45.0%	26.0%	29.2%	26.5%	30.3%	34.6%	39.9%	43.1%	51.2%	47.6%	49.8%	42.5%	49.5%	40.0%	47.4%
	H	100.0%	100.0%	16.1%	6.1%	15.7%	2.9%	18.3%	19.4%	16.1%	23.9%	16.3%	17.7%	11.4%	24.1%	6.1%	5.9%
Employer Reimbursement/ Assistance	N	2,584	2,099	317	100	605	62	301	367	306	342	262	220	589	880	204	128
	V	12.3%	13.9%	7.0%	7.0%	14.0%	9.4%	7.8%	11.1%	11.2%	10.8%	10.4%	9.1%	30.0%	26.6%	18.1%	15.2%
	H	100.0%	100.0%	12.3%	4.8%	23.4%	3.0%	11.6%	17.5%	11.8%	16.3%	10.1%	10.5%	22.8%	41.9%	7.9%	6.1%
Other	N	648	650	78	35	88	11	95	118	100	132	98	108	138	212	51	34
	V	3.1%	4.3%	1.7%	2.5%	2.0%	1.7%	2.5%	3.6%	3.6%	4.2%	3.9%	4.5%	7.0%	6.4%	4.5%	4.0%
	H	100.0%	100.0%	12.0%	5.4%	13.6%	1.7%	14.7%	18.2%	15.4%	20.3%	15.1%	16.6%	21.3%	32.6%	7.9%	5.2%
Unduplicated Total***	N	21,086	15,138	4,539	1,420	4,333	660	3,870	3,312	2,743	3,177	2,510	2,414	1,965	3,313	1,126	842

NOTE: In this table a recipient counts once in each source category from which he or she received support. Since students indicate multiple sources of support, the vertical percentages sum to more than 100 percent. (Data on the "primary" source of support for doctorate recipients are presented in the body of the Summary Report.) Field groupings may differ from those in reports published by federal sponsors of the Survey of Earned Doctorates. Furthermore, because the form of this question and its response categories changed in 1998, the ability to make trend comparison with previous cycles appears to be broken (except for teaching assistantships, research assistantships, and Foreign Support); see Appendix C: Technical Notes for details.

#V denotes vertical percentage; H denotes horizontal percentage.

*Includes mathematics and computer sciences.

**Excludes 174 individuals for whom gender was not reported.

***The 6,429 Ph.D.s who did not report sources of support are omitted from this total. Percentages are based only on known responses.

‡This category includes spouses and significant others.

Source:NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-6. State of doctoral institution of doctorate recipients, by broad field and gender, 1998

	Total**		Physical Sciences*		Engineering		Life Sciences		Social Sciences		Humanities		Education		Prof./Other Fields	
State	**Men**	**Wome**	**Men**	**Wome**	**Men**	**Wome**	**Men**	**Wome**	**Men**	**Wome**	**Men**	**Wome**	**Men**	**Wome**	**Men**	**Wome**
U.S. Total★	24,653	17,856	5,104	1,600	5,108	769	4,640	3,876	3,206	3,838	2,814	2,675	2,422	4,120	1,359	978
Alabama	337	237	62	17	78	8	87	67	25	39	9	12	54	80	22	14
Alaska	25	9	10	2	4	0	9	7	0	0	1	0	1	0	0	0
Arizona	468	290	103	36	91	9	73	50	59	63	63	44	54	71	25	17
Arkansas	106	63	13	1	10	1	35	17	2	5	10	3	29	32	7	4
California	2,769	1,933	663	192	630	101	466	384	424	564	320	306	154	301	112	85
Colorado	453	307	128	33	102	21	78	71	47	59	37	30	40	72	21	21
Connecticut	371	264	78	27	48	3	79	77	63	66	76	61	15	21	12	9
Delaware	102	71	28	7	26	5	9	7	13	14	7	7	18	30	1	1
Dist. of Columbia	254	248	43	16	32	7	29	37	51	72	56	52	22	41	21	23
Florida	1,019	915	178	68	169	16	132	94	137	217	74	57	227	396	102	67
Georgia	571	418	82	32	153	24	121	84	60	80	44	61	73	120	38	17
Hawaii	101	58	30	8	6	1	26	21	21	15	16	9	2	3	0	1
Idaho	63	27	13	4	7	2	18	6	1	0	2	1	19	14	3	0
Illinois	1,339	914	288	82	296	52	191	186	208	218	184	148	114	186	58	42
Indiana	648	433	140	46	149	21	107	92	64	80	102	92	54	82	32	20
Iowa	417	231	83	28	87	17	102	54	50	36	31	28	52	56	12	12
Kansas	281	204	41	22	41	9	73	32	40	41	34	33	43	56	9	11
Kentucky	207	135	34	10	27	2	54	36	18	25	39	24	19	30	16	8
Louisiana	326	229	67	13	43	6	78	73	41	34	52	37	26	56	19	10
Maine	21	29	2	4	3	2	7	9	2	5	3	1	3	8	1	0
Maryland	560	441	125	42	122	22	134	149	79	85	57	63	20	57	23	23
Massachusetts	1,311	849	305	85	311	60	226	219	188	182	145	139	67	109	69	55
Michigan	869	634	170	71	237	36	147	146	112	147	80	82	76	123	47	29
Minnesota	493	340	81	23	90	7	113	83	44	55	59	42	62	104	44	26
Mississippi	211	138	28	13	22	3	44	16	27	12	11	8	48	76	31	10
Missouri	463	315	80	23	102	7	88	73	56	62	38	48	62	83	37	19
Montana	61	36	16	2	3	1	22	14	6	4	0	0	13	15	1	0
Nebraska	165	149	24	12	12	2	57	42	21	28	14	14	21	39	16	12
Nevada	52	34	19	7	8	1	7	7	11	9	2	4	3	6	2	0
New Hampshire	71	48	28	11	8	2	24	14	3	7	4	8	4	6	0	0
New Jersey	498	330	122	37	119	20	67	68	62	65	96	90	13	33	19	17
New Mexico	190	115	48	10	48	7	30	16	18	21	14	15	23	40	9	6
New York	2,013	1,752	423	136	325	48	375	330	320	442	313	406	160	290	97	100
North Carolina	618	465	137	56	119	24	149	149	81	79	68	52	46	85	18	20
North Dakota	48	37	9	3	4	0	27	5	3	9	1	3	4	17	0	0
Ohio	1,082	778	217	55	275	30	182	175	101	152	113	109	128	213	66	44
Oklahoma	241	160	32	14	47	10	50	18	23	27	31	20	40	55	18	16
Oregon	246	180	50	21	30	7	88	61	28	20	20	24	22	41	8	6
Pennsylvania	1,288	933	216	71	346	55	178	174	164	187	146	156	146	222	92	68
Puerto Rico	22	81	1	4	1	0	5	1	7	49	2	3	6	24	0	0
Rhode Island	139	110	59	30	14	3	11	16	21	26	31	33	0	0	3	2
South Carolina	202	167	46	8	32	5	52	49	20	22	19	22	23	46	10	15
South Dakota	33	37	1	1	2	0	4	4	4	8	0	0	22	24	0	0
Tennessee	362	280	38	19	55	8	72	63	49	50	51	30	65	91	32	19
Texas	1,644	1,091	327	67	369	37	304	258	199	193	174	152	156	317	115	67
Utah	235	114	53	10	56	8	48	26	41	30	11	6	16	26	10	8
Vermont	27	35	2	2	7	2	13	7	4	11	0	3	1	10	0	0
Virginia	548	434	111	43	131	19	105	86	57	77	37	32	76	161	31	16
Washington	390	303	92	30	71	15	88	80	41	53	44	43	37	63	17	19
West Virginia	94	57	14	1	24	1	30	17	9	13	4	1	13	24	0	0
Wisconsin	557	377	122	38	113	22	118	101	76	76	69	61	26	60	33	19
Wyoming	42	21	22	7	3	0	8	5	5	4	0	0	4	5	0	0

NOTE: Field groupings may differ from those in reports published by federal sponsors of the Survey of Earned Doctorates.

**Excludes 174 individuals for whom gender was not reported. *Includes mathematics and computer sciences.

★Includes the 50 states, District of Columbia, and Puerto Rico.

SOURCE: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-7. Institutions granting research doctorates, by major field, 1998

State/Institution	1998 Total	Physics and Astronomy	Chemistry	Earth, Atmos., and Marine Sciences	Math and Computer Sciences	Engineering	Biosciences	Health Sciences	Agricultural Sci.	Psychology	Other Social Sciences	History	Eng. and Amer. Language and Lit.	Other Humanities	Education	Professional/Other/ Unknown Fields*
TOTAL ALL INSTITUTIONS	42,683	1,584	2,217	838	2,100	5,919	5,848	1,500	1,192	3,676	3,399	988	1,076	3,435	6,559	2,352
ALABAMA	574	29	19	6	25	86	79	45	30	48	16	7	9	5	134	12
Alabama A&M University	10	6	0	0	0	1	1	0	2	0	0	0	0	0	0	0
Auburn University	192	7	13	1	11	36	10	6	28	22	9	2	3	0	37	7
United States Sports Academy	19	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0
Univ of Alabama-Birmingham	141	4	2	0	5	9	50	33	0	16	2	0	0	0	20	0
Univ of Alabama-Huntsville	41	7	1	4	6	23	0	0	0	0	0	0	0	0	0	0
Univ of Alabama	150	5	3	0	3	17	8	2	0	10	5	5	6	5	52	29
Univ of South Alabama	21	0	0	1	0	0	10	4	0	0	0	0	0	0	6	0
ALASKA	34	5	0	7	0	4	13	0	3	0	0	0	0	1	1	0
Univ of Alaska	34	5	0	7	0	4	13	0	3	0	0	0	0	1	1	0
ARIZONA	759	46	26	37	30	100	76	17	31	57	65	20	18	69	125	42
Arizona State Univ	292	10	7	7	16	59	20	6	0	32	21	8	9	22	48	27
Northern Arizona Univ	56	0	0	0	0	0	3	0	2	0	6	3	1	1	40	0
Univ of Arizona	411	36	19	30	14	41	53	11	29	25	38	9	8	46	37	15
ARKANSAS	169	5	6	2	1	11	25	7	20	7	0	8	1	4	61	11
Arkansas State Univ	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
U of Arkansas-Fayetteville	122	4	6	0	1	11	11	7	20	7	0	8	1	4	31	11
U of Arkansas-Little Rock	31	1	0	2	0	0	0	0	0	0	0	0	0	0	28	0
U of Arkansas-Med Sci Campus	14	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0
CALIFORNIA	4,731	212	283	119	250	736	665	125	64	564	433	142	124	360	457	197
Azusa Pacific University	4	0	0	0	0	0	0	0	0	0	0	0	0	0	3	1
Biola University	16	0	0	0	0	0	0	0	0	14	0	0	0	0	2	0
California Inst of Technology	191	48	30	17	21	45	24	0	0	1	4	0	0	0	1	0
Calif Sch Prof Psych-Alameda	63	0	0	0	0	0	0	0	0	62	0	0	0	0	0	1
Calif. Sch Prof Psych-Fresno	37	0	0	0	0	0	0	0	0	37	0	0	0	0	0	0
Calif Sch Prof Psych-LA	77	0	0	0	0	0	0	0	0	75	0	0	0	0	1	1
Calif Sch Prof Psych-San Diego	79	0	0	0	0	1	0	0	0	76	0	0	0	1	1	0
Claremont Graduate School	95	0	0	0	3	2	0	0	0	14	28	2	7	14	15	10
Fielding Institute	38	0	0	0	0	0	0	0	0	23	2	0	0	0	2	11
Fuller Theological Seminary	31	0	0	0	1	0	0	0	0	22	0	0	0	3	0	5
Graduate Theological Union	22	0	0	0	0	0	0	0	0	0	0	0	0	11	1	10
La Sierra Univ	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
Loma Linda Univ	12	0	0	0	0	0	8	4	0	0	0	0	0	0	0	0
Naval Postgraduate School	10	1	0	1	2	6	0	0	0	0	0	0	0	0	0	0
Pacific Grad School of Psychology	27	0	0	0	0	0	0	0	0	27	0	0	0	0	0	0
Pepperdine Univ	33	0	0	0	0	0	0	0	0	0	1	0	0	0	32	0
Rand Grad Sch of Policy Studies	4	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0
Scripps Institute	22	0	9	0	0	0	13	0	0	0	0	0	0	0	0	0
San Diego State Univ	32	0	0	0	0	1	7	5	0	11	1	0	0	0	7	0
School of Theology at Claremont	2	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0
Stanford University	595	22	40	28	48	177	75	0	2	13	52	16	16	54	28	24
U.S. International Univ	39	0	0	0	0	0	0	0	0	23	1	0	0	1	4	10
Univ of California-Berkeley	748	37	54	10	55	153	92	28	21	18	87	35	29	74	20	35
Univ of California-Davis	337	11	24	5	9	42	129	10	36	8	23	8	7	8	17	0
Univ of California-Irvine	196	11	28	1	12	36	39	2	0	7	20	8	10	17	1	4
Univ of California-Los Angeles	605	23	30	18	35	75	66	30	0	19	80	40	14	76	64	35
Univ of California-Riverside	122	4	7	3	10	0	27	1	3	7	22	8	7	10	12	1
Univ of California-San Diego	268	12	24	15	19	50	62	5	2	23	28	6	4	11	2	5
Univ of California-San Francisco	91	1	8	0	0	3	48	21	0	2	6	1	0	0	0	1
Univ of California-Santa Barbara	263	20	11	6	18	61	19	1	0	18	27	9	15	34	20	4
Univ of California-Santa Cruz	87	15	7	6	3	7	20	0	0	2	10	3	7	5	2	0
Univ of La Verne	41	0	0	0	0	0	0	0	0	1	0	0	0	0	40	0
Univ of the Pacific	10	0	0	0	0	0	1	0	0	0	0	0	0	0	9	0
Univ of San Diego	22	0	0	0	0	0	0	6	0	0	1	0	0	0	14	1
Univ of San Francisco	58	0	0	0	0	0	0	0	0	3	1	0	0	0	53	1
Univ of Santa Clara	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
Univ of Southern California	403	7	11	9	14	75	35	12	0	12	35	6	8	41	104	34
Wright Institute, The	45	0	0	0	0	0	0	0	0	45	0	0	0	0	0	0
COLORADO	764	31	44	54	33	126	93	23	33	49	57	8	15	44	112	42
Colorado School of Mines	37	0	3	13	1	17	0	0	0	0	3	0	0	0	0	0
Colorado State Univ	212	4	20	15	7	35	41	9	33	16	8	0	0	0	21	3
Univ of Colorado	375	26	18	25	21	73	52	13	0	11	36	7	9	29	21	34
Univ of Denver	74	1	2	1	3	1	0	0	0	14	9	1	6	4	27	5
Univ of Northern Colorado	66	0	1	0	1	0	0	1	0	8	1	0	0	11	43	0

NOTE: Field groupings may differ from those in reports published by Federal sponsors of the Survey of Earned Doctorates.
*Includes 20 respondents for whom doctoral field is unknown.
Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-7. Institutions granting research doctorates, by major field, 1998

State/Institution	1998 Total	Physics and Astronomy	Chemistry	Earth, Atmos., and Marine Sciences	Math and Computer Sciences	Engineering	Biosciences	Health Sciences	Agricultural Sci.	Psychology	Other Social Sciences	History	Eng. and Amer. Language and Lit.	Other Humanities	Education	Professional/Other/ Unknown Fields*
CONNECTICUT	638	28	37	10	31	53	129	20	7	44	85	34	13	90	36	21
Univ of Connecticut	254	8	14	4	16	34	50	10	3	22	29	5	4	11	35	9
Univ of New Haven	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Wesleyan Univ	19	3	5	0	3	0	6	0	0	0	0	0	0	2	0	0
Yale Univ	362	17	18	6	12	19	73	10	4	22	56	29	9	77	1	9
DELAWARE	173	5	13	10	7	31	14	1	1	9	18	2	3	9	48	2
Univ of Delaware	144	5	13	10	7	31	14	1	1	9	18	2	3	9	19	2
Wilmington College	29	0	0	0	0	0	0	0	0	0	0	0	0	0	29	0
DISTRICT OF COLUMBIA	504	15	21	2	21	39	52	13	1	53	70	25	8	75	64	45
American Univ	62	4	3	0	1	0	2	0	0	8	27	6	0	0	9	2
Catholic Univ of America	109	5	6	0	0	9	6	8	0	12	4	4	1	33	4	17
Gallaudet Univ	5	0	0	0	0	0	0	0	0	2	0	0	0	0	3	0
George Washington Univ	176	5	3	2	18	27	15	0	0	14	15	2	5	10	44	16
Georgetown Univ	80	0	3	0	0	0	16	0	0	5	13	11	0	32	0	0
Howard Univ	72	1	6	0	2	3	13	5	1	12	11	2	2	0	4	10
FLORIDA	1,945	40	84	28	95	185	128	42	57	275	85	19	29	83	624	171
Barry Univ	10	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5
Caribbean Ctr Adv Stud-Miami	34	0	0	0	0	0	0	0	0	31	0	0	0	3	0	0
Florida A&M Univ	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
Florida Atlantic Univ	49	2	0	0	0	14	1	0	0	2	1	0	0	1	21	7
Florida Inst of Technology	20	1	1	0	6	8	2	0	0	0	0	0	0	0	2	0
Florida International Univ	71	0	0	0	2	4	3	0	0	5	11	0	0	0	32	14
Florida State Univ	306	16	19	5	14	9	19	2	0	25	23	10	7	40	74	43
Nova Southeastern Univ	543	0	0	1	35	0	0	1	0	149	0	0	0	1	298	58
Univ of Central Florida	69	7	0	1	6	22	0	0	0	4	0	0	0	0	26	3
Univ of Florida	457	11	59	4	16	97	59	25	57	28	32	8	6	11	24	20
Univ of Miami	144	3	1	10	2	14	30	5	0	20	14	1	5	21	16	2
Univ of Sarasota	87	0	0	0	3	0	0	0	0	0	1	0	0	0	76	7
Univ of South Florida	153	0	4	7	11	16	13	9	0	11	3	0	11	6	50	12
GEORGIA	992	17	45	10	42	178	133	30	42	88	54	12	30	63	193	55
Clark Atlanta Univ	51	0	0	0	0	0	1	0	0	3	7	0	0	8	30	2
Emory University	135	3	16	0	5	1	32	5	0	1	14	7	16	31	3	1
Georgia Inst of Technology	262	10	15	8	28	175	9	0	0	10	0	0	0	0	0	7
Georgia Southern Univ	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0
Georgia State Univ	137	2	1	0	1	0	5	9	0	26	9	2	4	1	57	20
Institute of Paper Sci & Tech	6	0	0	0	0	1	0	0	5	0	0	0	0	0	0	0
Medical College of Georgia	22	0	0	0	0	0	19	3	0	0	0	0	0	0	0	0
Mercer Univ-Southern Schl of Phar	2	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
Univ of Georgia	369	2	13	2	8	1	67	11	37	48	24	3	10	23	95	25
HAWAII	159	11	9	12	6	7	31	5	11	7	29	7	5	13	5	1
Univ of Hawaii at Manoa	159	11	9	12	6	7	31	5	11	7	29	7	5	13	5	1
IDAHO	90	0	10	2	5	9	14	0	10	0	1	0	1	2	33	3
Idaho State Univ	19	0	0	0	2	3	5	0	0	0	1	0	1	2	5	0
Univ of Idaho	71	0	10	2	3	6	9	0	10	0	0	0	0	0	28	3
ILLINOIS	2,260	95	117	24	134	352	263	74	42	176	250	57	77	199	300	100
Depaul Univ	16	0	0	0	2	0	0	0	0	11	0	0	0	3	0	0
Finch U of Hlth Sci-Chicago Med	18	0	0	0	0	0	8	1	0	9	0	0	0	0	0	0
Illinois Inst of Technology	75	2	3	0	14	32	6	0	0	16	0	0	0	0	0	2
Illinois State Univ-Normal	51	0	0	0	2	0	3	0	0	1	1	1	8	4	31	0
Inst for Clinical Social Work	8	0	0	0	0	0	0	0	0	1	0	0	0	0	0	7
Loyola Univ of Chicago	128	0	2	0	1	0	23	8	0	26	7	1	10	7	36	7
Lutheran School of Theol-Chicago	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
Northern Illinois Univ	116	0	5	0	2	0	2	0	0	12	12	0	7	1	75	0
Northwestern Univ	371	14	19	4	25	94	44	4	0	32	50	6	6	40	11	22
Roosevelt Univ	13	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0
Rush Univ	26	1	0	0	0	0	3	21	0	0	1	0	0	0	0	0
Southern Ill Univ-Carbondale	138	2	5	0	4	6	10	7	2	15	13	4	11	17	31	11
Southern Ill Univ-Edwardsville	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
Univ of Chicago	368	28	17	8	25	0	51	1	0	10	95	29	18	66	7	13
Univ of Illinois-Chicago	220	8	20	3	15	45	42	26	0	6	16	4	5	4	16	10
Univ of Illinois-Urbana/Champaign	706	40	46	9	44	175	71	6	40	37	55	12	12	55	76	28
INDIANA	1,084	26	98	11	53	170	119	35	46	67	77	21	49	124	137	53
Ball State Univ	49	0	0	0	0	0	0	2	0	12	0	0	4	11	20	0
Indiana State Univ	27	0	0	0	0	0	3	0	0	12	3	0	0	0	9	0
Indiana Univ-Bloomington	380	9	24	4	22	0	44	7	0	19	40	11	16	80	72	32
Indiana Univ-Purdue-Indianapolis	15	0	0	0	0	0	1	14	0	0	0	0	0	0	0	0

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INDIANA (continued)																
Purdue Univ	496	11	66	7	24	139	53	12	46	19	19	4	22	20	35	19
Univ of Notre Dame	117	6	6	0	7	31	18	0	0	5	15	6	7	13	1	2
IOWA	649	19	51	7	35	104	79	40	37	38	48	13	8	38	108	24
Drake Univ	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
Iowa State Univ	300	15	30	2	17	66	40	2	37	22	23	5	0	3	32	6
Maharishi International Univ	5	0	0	0	0	0	3	0	0	1	0	0	0	1	0	0
Univ of Iowa	327	4	21	5	18	36	36	38	0	15	25	8	8	34	61	18
Univ of Northern Iowa	11	0	0	0	0	2	0	0	0	0	0	0	0	0	9	0
KANSAS	485	9	35	5	14	50	62	13	30	48	33	16	16	35	99	20
Kansas State Univ	161	4	6	1	9	23	27	1	30	12	11	1	1	0	34	1
Univ of Kansas	287	5	25	4	0	15	35	10	0	31	22	15	15	35	56	19
Wichita State Univ	37	0	4	0	5	12	0	2	0	5	0	0	0	0	9	0
KENTUCKY	342	7	18	2	17	29	69	7	14	29	14	14	8	41	49	24
Southern Bapt Theol Seminary	30	0	0	0	0	0	0	0	0	0	0	1	0	18	1	10
Spalding Univ	10	0	0	0	0	0	0	0	0	0	1	0	0	0	9	0
Univ of Kentucky	227	7	9	2	16	21	49	6	14	18	11	13	7	18	23	13
Univ of Louisville	75	0	9	0	1	8	20	1	0	11	2	0	1	5	16	1
LOUISIANA	555	10	28	8	34	49	96	35	20	36	39	15	25	49	82	29
Grambling State Univ	10	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0
Louisiana St U and A&M Col-Baton Rouge	258	8	14	8	11	33	39	6	20	22	16	6	12	21	33	9
Louisiana St U Med Schl-New Orleans	23	0	0	0	0	0	18	5	0	0	0	0	0	0	0	0
Louisiana St U Med Schl-Shreveport	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
Louisiana Tech Univ	9	0	0	0	0	3	0	0	0	0	0	0	0	0	4	2
New Orleans Bapt Theol Seminary	25	0	0	0	0	0	0	0	0	0	0	1	0	13	1	10
Northeast Louisiana Univ	11	0	1	0	0	0	3	5	0	0	0	0	0	0	2	0
Tulane Univ of Louisiana	126	2	7	0	12	9	28	19	0	6	12	8	8	11	0	4
Univ of New Orleans	61	0	6	0	0	0	0	0	0	8	11	0	0	0	32	4
Univ of Southwestern Louisiana	30	0	0	0	11	4	6	0	0	0	0	0	5	4	0	0
MAINE	50	0	2	4	0	5	10	0	6	7	0	3	0	1	11	1
Univ of Maine	50	0	2	4	0	5	10	0	6	7	0	3	0	1	11	1
MARYLAND	1,002	55	38	17	57	144	164	106	13	71	93	21	13	86	77	47
Johns Hopkins Univ	363	20	13	9	9	43	84	77	0	14	50	13	3	18	9	1
Loyola College in Maryland	4	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0
Morgan State Univ	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
Peabody Inst of Johns Hopkins	22	0	0	0	0	0	0	0	0	0	0	0	0	21	0	1
Uniformed Serv U of Hlth Sci	10	0	0	0	0	0	6	0	0	4	0	0	0	0	0	0
Univ of Maryland-Baltimore County	55	0	4	0	12	19	4	0	0	6	6	0	0	3	0	1
Univ of Maryland-College Park	476	35	18	8	36	82	34	10	12	42	37	8	10	44	64	36
University of Maryland-Eastern Shore	2	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0
Univ of Maryland-Baltimore Prof Schs	66	0	3	0	0	0	35	19	0	1	0	0	0	0	0	8
MASSACHUSETTS	2,174	128	119	33	112	377	355	83	9	101	270	51	37	196	176	127
American Internatl College	6	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0
Boston College	100	5	2	0	0	0	13	8	0	6	10	4	2	15	20	15
Boston Univ	278	15	8	4	8	14	59	12	0	24	29	1	1	52	32	19
Brandeis Univ	90	3	5	0	9	1	21	2	0	2	27	6	7	5	1	1
Clark Univ	31	1	2	0	0	1	2	0	0	8	12	0	0	2	2	1
Harvard Univ	560	38	33	7	23	12	107	45	0	14	87	33	10	85	42	24
Mass Coll Pharm & Health Sci	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
Mass Inst of Technology	492	40	29	19	41	229	52	0	0	2	48	1	0	2	2	27
New England Conserv of Music	4	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0
Northeastern Univ	87	6	9	0	5	23	8	2	0	10	22	0	0	0	1	1
Simmons College	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Smith College	11	0	0	0	0	0	0	0	0	0	0	0	0	1	0	10
Springfield College	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0
Tufts Univ	81	3	3	1	2	7	33	3	0	6	11	1	7	2	1	1
Univ of Massachusetts-Amherst	298	13	23	2	16	54	24	9	9	21	18	5	10	29	45	20
Univ of Massachusetts-Boston	15	0	0	0	0	0	0	0	0	8	5	0	0	0	2	0
Univ of Massachusetts-Lowell	51	2	5	0	8	13	6	2	0	0	1	0	0	0	14	0
Univ of Massachussets-Worcester	26	0	0	0	0	0	26	0	0	0	0	0	0	0	0	0
Worcester Polytechnic Inst	27	2	0	0	0	23	2	0	0	0	0	0	0	0	0	0
MICHIGAN	1,509	60	90	18	75	275	171	66	56	122	139	27	30	105	199	76
Andrews Univ	19	0	0	0	0	0	0	0	0	3	0	0	0	3	12	1
Central Michigan Univ	4	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0
Eastern Michigan Univ	5	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0

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Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-7. Institutions granting research doctorates, by major field, 1998

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MICHIGAN (continued)																
Michigan State Univ	436	19	27	0	21	46	58	10	43	38	49	6	8	18	57	36
Michigan Tech Univ	51	6	3	1	0	22	7	0	7	0	0	0	0	4	0	1
Oakland Univ	23	1	0	0	0	12	4	0	0	0	0	0	0	0	6	0
Univ of Detroit Mercy	6	0	0	0	0	1	0	0	0	5	0	0	0	0	0	0
Univ of Michigan	687	27	40	14	41	175	57	45	6	38	66	15	18	74	40	31
Wayne State Univ	220	5	20	0	7	19	44	11	0	21	16	5	3	6	58	5
Western Michigan Univ	58	2	0	3	6	0	1	0	0	13	8	1	1	0	21	2
MINNESOTA	843	24	39	5	38	99	108	37	52	55	44	23	8	73	168	70
Luther Seminary	5	0	0	0	0	0	0	0	0	0	0	0	0	4	0	1
Mayo Graduate School	20	0	0	0	0	1	19	0	0	0	0	0	0	0	0	0
Univ of Minnesota-Minneapolis	724	24	39	5	38	98	89	30	52	44	44	23	8	65	125	40
Univ of St Thomas	20	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0
Walden Univ	74	0	0	0	0	0	0	7	0	11	0	0	0	4	23	27
MISSISSIPPI	350	2	25	5	9	25	32	8	20	28	11	8	5	6	124	42
Delta State Univ	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Jackson State Univ	18	0	0	3	0	0	0	0	0	0	1	0	0	0	12	2
Mississippi State Univ	103	0	4	0	1	14	6	1	20	6	10	3	0	1	27	10
Reformed Theological Seminary	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
Univ of Mississippi	100	2	10	2	4	10	9	5	0	5	0	4	4	2	24	19
Univ of Mississippi-Med Ctr	13	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0
Univ of Southern Mississippi	112	0	11	0	4	1	4	2	0	17	0	1	1	2	60	9
MISSOURI	780	21	50	15	17	109	117	23	23	73	45	6	16	64	145	56
Concordia Seminary	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Midwest Baptist Theol Sem	17	0	0	0	0	0	0	0	0	0	0	0	0	4	0	13
St. Louis Univ	128	0	0	2	0	0	14	12	0	21	2	0	7	9	49	12
Univ of Missouri-Columbia	275	8	5	5	7	30	32	8	22	24	21	2	7	15	65	24
Univ of Missouri-Kansas City	54	1	4	0	0	1	11	1	0	4	0	1	0	10	21	0
Univ of Missouri-Rolla	61	2	11	0	5	42	1	0	0	0	0	0	0	0	0	0
Univ of Missouri-St Louis	34	0	7	0	0	0	3	0	0	11	4	0	0	0	9	0
Washington Univ	210	10	23	8	5	36	56	2	1	13	18	3	2	26	1	6
MONTANA	97	6	6	2	4	4	24	0	12	10	0	0	0	0	28	1
Montana State Univ	50	6	5	0	4	4	8	0	3	0	0	0	0	0	20	0
Univ of Montana	47	0	1	2	0	0	16	0	9	10	0	0	0	0	8	1
NEBRASKA	314	8	10	4	14	14	42	10	47	25	24	3	13	12	60	28
Creighton Univ	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
Univ of Nebraska-Lincoln	282	8	9	4	14	14	20	7	47	25	22	3	13	12	56	28
Univ of Nebraska-Med Center	24	0	1	0	0	0	20	3	0	0	0	0	0	0	0	0
Univ of Nebraska-Omaha	6	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0
NEVADA	86	3	6	17	0	9	13	1	0	12	8	1	5	0	9	2
Univ of Nevada-Las Vegas	14	1	0	0	0	1	1	0	0	0	2	0	2	0	5	2
Univ of Nevada-Reno	72	2	6	17	0	8	12	1	0	12	6	1	3	0	4	0
NEW HAMPSHIRE	119	10	16	5	8	10	31	0	7	6	4	5	4	3	10	0
Dartmouth College	45	5	10	1	4	6	17	0	0	2	0	0	0	0	0	0
Univ of New Hampshire	74	5	6	4	4	4	14	0	7	4	4	5	4	3	10	0
NEW JERSEY	830	44	38	21	56	139	112	6	17	57	70	38	26	124	47	37
Drew Univ	30	0	0	0	0	0	0	0	0	0	0	3	4	19	0	4
Fairleigh Dickinson Univ	7	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0
New Jersey Inst of Technology	31	0	1	2	4	24	0	0	0	0	0	0	0	0	0	0
Princeton Theol Seminary	13	0	0	0	0	0	0	0	0	0	0	2	0	7	0	4
Princeton Univ	264	28	12	5	19	47	17	0	0	4	33	23	9	62	1	4
Rutgers St Univ-New Brunswick	364	14	15	14	26	55	63	6	17	20	33	8	13	36	35	9
Rutgers St Univ-Newark	32	0	2	0	2	0	10	0	0	1	4	0	0	0	0	13
Seton Hall Univ	37	0	7	0	0	0	1	0	0	16	0	0	0	0	11	2
Stevens Inst of Technology	31	2	1	0	5	13	0	0	0	9	0	0	0	0	0	1
Univ of Med & Dent of NJ	21	0	0	0	0	0	21	0	0	0	0	0	0	0	0	0
NEW MEXICO	311	24	15	7	14	57	29	3	15	25	14	5	5	19	64	15
New Mexico Inst of Mining & Tech	13	1	0	6	0	6	0	0	0	0	0	0	0	0	0	0
New Mexico State Univ	94	9	9	0	8	13	9	0	15	5	0	0	0	4	15	7
Univ of New Mexico	204	14	6	1	6	38	20	3	0	20	14	5	5	15	49	8
NEW YORK	3,784	159	148	47	210	374	557	93	58	395	370	98	164	459	454	198
Adelphi Univ	46	0	0	0	0	0	0	16	0	23	0	0	0	0	0	7
Albany Medical College	13	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0

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NEW YORK (continued)																
Alfred Univ	10	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0
City U of NY-Grad Sch/U Ctr	333	15	14	6	16	18	44	7	0	51	48	6	21	60	10	17
Clarkson Univ	22	1	9	0	1	10	1	0	0	0	0	0	0	0	0	0
Columbia Univ	462	20	18	10	18	41	70	13	0	44	63	38	27	59	19	22
Columbia Univ-Teachers College	168	0	0	0	0	0	1	0	0	1	0	0	0	4	162	0
Cornell Univ	476	37	27	7	30	84	79	2	47	17	52	15	7	47	9	16
Cornell Univ Medical Campus	31	0	0	0	0	0	31	0	0	0	0	0	0	0	0	0
Fordham Univ	132	0	0	0	0	0	7	0	0	33	9	3	3	13	46	18
Hebrew Union College	5	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0
Hofstra Univ	33	0	0	0	0	0	0	0	0	31	0	0	0	1	1	0
Jewish Theol Sem of America	12	0	0	0	0	0	0	0	0	0	0	1	0	8	1	2
The Juilliard School	16	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0
Long Island Univ-Brooklyn Campus	10	0	0	0	0	0	0	0	0	10	0	0	0	0	0	0
Manhattan School of Music	9	0	0	0	0	0	0	0	0	0	0	0	0	9	0	0
New School for Social Research	61	0	0	0	0	0	0	0	0	24	32	0	0	5	0	0
New York Medical College	5	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
New York Univ	430	6	6	2	23	2	52	29	1	33	31	11	44	92	58	40
Pace Univ	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Polytechnic Univ	39	2	4	0	5	28	0	0	0	0	0	0	0	0	0	0
Rensselaer Polytechnic Inst	128	7	5	2	23	76	2	0	0	0	1	0	0	4	0	8
Rockefeller Univ	24	1	0	0	0	0	22	0	0	0	0	0	0	0	0	1
St Johns Univ-Queens	48	0	0	0	0	0	4	2	0	19	1	3	7	1	11	0
State Univ of NY-Albany	174	6	7	3	12	0	15	2	1	28	16	2	11	16	40	15
State Univ of NY-Binghamton	81	0	6	0	15	6	3	0	0	7	29	1	4	7	2	1
State Univ of NY-Buffalo	294	5	18	6	10	40	45	13	0	29	15	5	17	28	52	11
State Univ of NY-Stony Brook	264	21	16	9	32	27	56	1	1	14	18	7	14	46	0	2
SUNY Coll-Environ Sci & Forestry	15	0	1	0	0	1	4	0	8	0	1	0	0	0	0	0
SUNY College of Optometry	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
SUNY-Hlth Sci Ctr-Brooklyn	13	0	0	0	0	0	12	1	0	0	0	0	0	0	0	0
SUNY-Hlth Sci Ctr-Syracuse	6	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0
Syracuse Univ	163	8	3	0	11	14	8	2	0	20	39	1	2	7	29	19
Union College	3	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1
Union Theol Seminary	7	0	0	0	0	0	0	0	0	1	0	0	0	1	0	5
Univ of Rochester	219	30	14	2	14	16	51	4	0	10	15	5	7	30	14	7
Yeshiva Univ	26	0	0	0	0	0	25	0	0	0	0	0	0	0	0	1
NORTH CAROLINA	1,084	33	69	23	69	143	204	59	35	66	94	18	39	63	131	38
Duke Univ	243	13	11	8	8	31	65	0	1	13	32	7	19	29	0	6
East Carolina Univ Sch of Med	15	0	0	0	0	0	12	0	0	0	0	0	0	0	3	0
North Carolina A & T	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
North Carolina St U-Raleigh	322	10	8	7	30	94	39	2	33	11	22	0	0	0	65	1
U of N Carolina-Chapel Hill	391	8	45	8	31	15	62	53	1	23	39	11	14	25	25	31
U of N Carolina-Greensboro	78	0	0	0	0	0	1	4	0	19	1	0	6	9	38	0
Wake Forest Univ	32	2	5	0	0	0	25	0	0	0	0	0	0	0	0	0
NORTH DAKOTA	85	1	6	1	4	4	21	2	9	12	0	2	1	1	21	0
North Dakota State Univ	31	0	4	0	4	1	12	2	8	0	0	0	0	0	0	0
Univ of North Dakota	54	1	2	1	0	3	9	0	1	12	0	2	1	1	21	0
OHIO	1,863	66	122	15	69	305	250	84	25	178	75	51	39	133	341	110
Air Force Inst of Technology	29	4	0	0	2	23	0	0	0	0	0	0	0	0	0	0
Bowling Green State Univ	93	0	9	0	8	0	7	1	0	12	5	3	8	17	13	10
Case Western Reserve Univ	177	6	14	0	7	46	33	17	0	12	7	6	7	4	0	18
Cleveland State Univ	33	0	6	0	0	6	3	0	0	0	1	0	0	0	11	6
Hebrew Union College	5	0	0	0	0	0	0	0	0	0	0	2	0	3	0	0
Kent State Univ	156	7	4	2	9	0	11	2	0	38	6	3	6	2	53	13
Medical College of Ohio-Toledo	23	0	0	0	0	0	22	1	0	0	0	0	0	0	0	0
Miami Univ	51	0	3	0	0	0	9	0	0	16	1	4	2	1	15	0
Ohio State Univ	664	32	34	10	32	89	99	34	25	38	42	20	9	58	108	34
Ohio Univ	133	5	4	0	3	11	12	1	0	16	1	5	2	8	50	15
Univ of Akron	127	2	31	0	0	42	1	0	0	20	4	2	0	0	23	2
Univ of Cincinnati	267	7	13	3	2	61	42	19	0	19	8	1	3	37	41	11
Univ of Dayton	27	1	0	0	0	15	1	0	0	0	0	0	0	0	10	0
Univ of Toledo	63	2	4	0	2	11	2	9	0	6	0	5	2	3	16	1
Wright State Univ	14	0	0	0	4	1	8	0	0	1	0	0	0	0	0	0
Youngstown State	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
OKLAHOMA	405	4	12	20	10	57	41	6	21	31	19	2	10	41	97	34
Oklahoma State Univ	197	2	2	4	5	21	16	0	21	12	7	1	4	30	61	11
Univ of Oklahoma	187	2	10	12	3	27	23	6	0	17	12	1	4	11	36	23
Univ of Tulsa	21	0	0	4	2	9	2	0	0	2	0	0	2	0	0	0
OREGON	427	17	19	18	17	38	88	24	37	18	30	5	15	24	63	14

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OREGON (continued)																
Oregon Grad Inst of Sci & Tech	13	2	0	0	2	6	3	0	0	0	0	0	0	0	0	0
Oregon Health Sciences Univ	29	0	0	0	0	0	24	3	0	1	0	0	0	1	0	0
Oregon State Univ	187	3	12	11	8	23	42	12	37	2	7	0	0	0	29	1
Portland State Univ	38	2	2	2	2	9	1	0	0	2	4	0	0	0	10	4
Univ of Oregon	160	10	5	5	5	0	18	9	0	13	19	5	15	23	24	9
PENNSYLVANIA	2,234	62	100	17	111	404	252	75	27	165	188	46	51	206	369	161
Bryn Mawr College	24	1	0	0	0	0	2	0	0	2	1	0	0	12	0	6
Carnegie Mellon Univ	204	8	4	1	41	99	5	0	0	3	14	4	0	6	0	19
Drexel Univ	52	3	2	0	3	33	2	0	0	4	0	0	0	0	1	4
Duquesne Univ	14	0	4	0	0	0	1	0	0	2	0	0	1	3	0	3
Indiana Univ of Pennsylvania	46	0	0	0	0	0	0	0	0	1	2	0	17	13	12	1
Lehigh Univ	96	6	2	2	6	35	5	0	0	7	2	2	9	1	17	2
MCP Hahnemann Univ	30	0	0	0	0	0	12	2	0	16	0	0	0	0	0	0
Pennsylvania State Univ	597	24	29	11	10	144	59	18	26	42	31	5	7	27	128	36
Philadelphia Coll. of Pharmarcy & Sci.	10	0	4	0	0	0	4	2	0	0	0	0	0	0	0	0
Temple Univ	292	2	9	0	12	2	20	9	0	47	25	13	3	36	90	24
Thomas Jefferson Univ	19	0	0	0	0	0	19	0	0	0	0	0	0	0	0	0
Univ of Pennsylvania	436	15	20	1	18	46	78	12	0	16	71	16	10	65	33	35
Univ of Pittsburgh	373	3	22	2	21	45	45	29	1	25	42	5	4	38	69	22
Villanova Univ	5	0	4	0	0	0	0	0	0	0	0	0	0	0	1	0
Westminster Theol Seminary	15	0	0	0	0	0	0	0	0	0	0	1	0	5	0	9
Widener Univ	21	0	0	0	0	0	0	3	0	0	0	0	0	0	18	0
PUERTO RICO	103	0	3	2	0	1	6	0	0	56	0	4	0	1	30	0
Caribbean Ctr for Adv Studies	37	0	0	0	0	0	0	0	0	36	0	0	0	1	0	0
Inter Amer U PR-Metro Campus	11	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0
Univ of Puerto Rico - Rio Piedras	51	0	3	0	0	0	5	0	0	20	0	4	0	0	19	0
Univ of Puerto Rico-Mayaguez	4	0	0	2	0	1	1	0	0	0	0	0	0	0	0	0
RHODE ISLAND	249	23	20	22	24	17	20	4	3	22	25	9	11	44	0	5
Brown Univ	174	20	12	8	22	12	15	0	0	7	24	9	6	39	0	0
Salve Regina Univ	3	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
Univ of Rhode Island	72	3	8	14	2	5	5	4	3	15	1	0	5	2	0	5
SOUTH CAROLINA	369	4	24	10	16	37	60	25	8	17	25	5	16	20	69	25
Clemson University	101	2	10	0	4	29	30	0	8	0	5	0	0	0	9	4
Medical Univ of South Carolina	24	0	3	0	0	0	20	1	0	0	0	0	0	0	0	0
South Carolina State Univ	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Univ of South Carolina	243	2	11	10	12	8	18	24	0	17	20	5	16	20	59	21
SOUTH DAKOTA	70	0	2	0	0	2	6	0	2	8	4	0	0	0	46	0
S Dakota Sch of Mines & Tech	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
South Dakota State Univ	10	0	2	0	0	0	2	0	2	0	4	0	0	0	0	0
Univ of South Dakota	58	0	0	0	0	0	4	0	0	8	0	0	0	0	46	0
TENNESSEE	643	13	17	3	24	63	109	22	4	48	52	13	18	50	156	51
East Tennessee State Univ	21	0	0	0	0	0	5	0	0	0	0	0	0	0	16	0
Meharry Medical College	15	0	0	0	0	0	14	1	0	0	0	0	0	0	0	0
Mid-America Baptist Theol Sem	8	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4
Middle Tennessee State Univ	10	0	1	0	0	0	0	0	0	0	2	2	1	2	2	0
Tennessee State Univ	35	0	0	0	0	0	0	0	0	6	1	0	0	0	26	2
Tennessee Technological Univ	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
Univ of Memphis	87	0	2	0	2	7	5	1	0	18	4	5	0	2	26	15
Univ of Tennessee-Knoxville	237	8	6	3	8	34	32	12	4	14	26	2	10	8	45	25
Univ of Tennessee-Memphis	12	0	0	0	0	0	9	3	0	0	0	0	0	0	0	0
Vanderbilt Univ	215	5	8	0	14	19	44	5	0	10	19	4	7	34	41	5
TEXAS	2,736	89	122	63	120	407	388	108	66	213	179	54	61	211	473	182
Baylor College of Medicine	44	0	0	0	0	0	43	1	0	0	0	0	0	0	0	0
Baylor Univ	33	0	0	0	1	0	8	0	0	1	3	0	0	7	13	0
Dallas Theological Seminary	6	0	0	0	0	0	0	0	0	0	0	0	0	1	0	5
Lamar Univ	2	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
Rice Univ	115	5	4	9	13	33	7	0	0	2	19	5	7	11	0	0
Sam Houston State Univ	7	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0
Southern Methodist Univ	46	2	0	2	7	16	2	0	0	4	8	0	0	5	0	0
Southwestern Baptist Theol Sem	36	0	0	0	0	0	0	0	0	3	0	0	0	15	1	17
Stephen F Austin St Univ	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
Texas A&M Univ-College Station	528	12	39	17	31	115	74	8	55	29	47	8	9	2	58	24
Texas A&M Univ-Commerce	49	0	0	0	0	0	0	0	0	5	0	0	0	0	44	0
Texas A&M Univ-Kingsville	28	0	0	0	0	0	0	0	2	0	0	0	0	0	26	0
Texas Christian Univ	24	3	4	0	0	0	1	0	0	1	0	8	4	3	0	0
Texas Southern Univ	21	0	0	0	0	0	0	0	0	0	0	0	0	0	21	0

NOTE: Field groupings may differ from those in reports published by Federal sponsors of the Survey of Earned Doctorates.

*Includes 20 respondents for whom doctoral field is unknown.

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-7. Institutions granting research doctorates, by major field, 1998

State/Institution	1998 Total	Physics and Astronomy	Chemistry	Earth, Atmos., and Marine Sciences	Math and Computer Sciences	Engineering	Biosciences	Health Sciences	Agricultural Sci.	Psychology	Other Social Sciences	History	Eng. and Amer. Language and Lit.	Other Humanities	Education	Professional/Other/Unknown Fields*
TEXAS (continued)																
Texas Tech Univ	168	5	7	1	7	25	15	0	8	32	5	4	2	10	28	18
Texas Woman's Univ	88	0	0	0	0	0	4	38	0	17	2	0	0	0	16	11
Univ of Dallas	4	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0
Univ of Houston	183	8	11	1	7	2	13	2	0	27	15	4	11	6	65	11
Univ of North Texas	160	3	12	2	13	1	7	0	0	30	4	2	5	16	50	15
Univ of North Texas-Hlth Sci Ctr	10	0	0	0	0	0	9	0	0	0	0	0	0	0	1	0
Univ of St. Thomas	3	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
Univ of Texas-Arlington	97	2	2	0	4	35	4	0	0	3	6	2	1	16	0	22
Univ of Texas-Austin	834	39	38	20	32	160	58	38	0	40	58	21	20	110	145	55
Univ of Texas-Dallas	50	10	4	6	4	6	8	1	0	2	3	0	0	2	0	4
Univ of Texas-El Paso	14	0	0	4	0	8	0	0	0	2	0	0	0	0	0	0
U Tex-Hlth Sci Ctr-Houston	66	0	0	0	1	0	46	14	0	0	1	0	0	0	4	0
U Tex-Hlth Sci Ctr-San Antonio	24	0	0	0	0	0	20	4	0	0	0	0	0	0	0	0
U Tex-Med Branch-Galveston	30	0	0	0	0	0	24	2	0	0	0	0	0	4	0	0
U Tex-Southwestern Med Ctr	65	0	1	1	0	5	44	0	0	14	0	0	0	0	0	0
UTAH	353	10	28	6	20	66	51	14	9	40	31	3	2	12	42	19
Brigham Young Univ	63	1	5	0	5	11	4	0	1	19	3	0	0	0	14	0
Univ of Utah	200	5	21	5	13	37	32	13	0	9	12	3	2	12	19	17
Utah State Univ	90	4	2	1	2	18	15	1	8	12	16	0	0	0	9	2
VERMONT	62	0	2	0	2	9	19	0	1	15	0	0	0	3	11	0
Middlebury College	3	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
Univ of Vermont	59	0	2	0	2	9	19	0	1	15	0	0	0	0	11	0
VIRGINIA	998	36	35	22	64	157	131	34	28	82	54	23	12	34	238	48
College of William & Mary	43	8	3	5	3	0	1	0	0	0	0	3	0	2	18	0
George Mason Univ	115	7	1	1	28	8	2	9	2	22	12	1	0	1	20	1
Hampton Univ	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Old Dominion Univ	74	2	0	4	4	14	19	4	0	15	2	0	0	0	8	2
Presbyterian Schl of Christ Educ	3	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
Regent Univ	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Union Theol Seminary	5	0	0	0	0	0	0	0	0	0	0	0	0	2	0	3
Univ of Virginia	303	12	14	9	12	41	42	4	0	25	24	17	12	29	55	7
Virginia Commonwealth Univ & Med Coll	86	0	3	0	0	1	45	14	0	4	0	0	0	0	12	7
Virginia Polytech Inst & St Univ	359	3	14	3	17	93	22	3	26	16	16	2	0	0	122	22
WASHINGTON	694	29	31	30	32	86	104	32	32	46	49	14	13	60	100	36
Gonzaga Univ	13	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0
Seattle Pacific Univ	4	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0
Seattle Univ	30	0	0	0	0	0	0	0	0	0	0	0	0	0	30	0
Univ of Washington	478	23	24	29	27	65	68	27	18	29	33	11	11	55	29	29
Washington State Univ	169	6	7	1	5	21	36	5	14	17	16	3	2	5	24	7
WEST VIRGINIA	151	3	3	2	7	25	28	9	10	17	5	2	1	2	37	0
Marshall Univ	4	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0
West Virginia Univ	147	3	3	2	7	25	24	9	10	17	5	2	1	2	37	0
WISCONSIN	938	36	51	17	57	135	147	34	38	51	103	30	22	78	86	53
Marquette Univ	58	0	2	0	0	17	2	0	0	3	0	5	2	12	15	0
Medical College of Wisconsin	17	0	0	1	0	0	14	2	0	0	0	0	0	0	0	0
Univ of Wisconsin-Madison	760	34	44	15	46	109	123	24	38	37	86	25	11	62	64	42
Univ of Wisconsin-Milwaukee	103	2	5	1	11	9	8	8	0	11	17	0	9	4	7	11
WYOMING	63	4	7	11	7	3	10	0	3	9	0	0	0	0	9	0
Univ of Wyoming	63	4	7	11	7	3	10	0	3	9	0	0	0	0	9	0

NOTE: Field groupings may differ from those in reports published by Federal sponsors of the Survey of Earned Doctorates.
*Includes 20 respondents for whom doctoral field is unknown.
Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE A-7. Top 50 doctorate-granting institutions, 1998

Rank	Institution	Number	Rank	Institution	Number
1.	University of Texas-Austin	834	26.	University of North Carolina-Chapel Hill	391
2.	University of Wisconsin-Madison	760	27.	Indiana University-Bloomington	380
3.	University of California-Berkeley	748	28.	University of Colorado at Boulder	375
4.	University of Minnesota Twin Cities	724	29.	University of Pittsburgh-Main Campus	373
5.	University of Illinois-Urbana/Champaign	706	30.	Northwestern University	371
6.	University of Michigan-Ann Arbor	687	31.	University of Georgia	369
7.	Ohio State University-Main Campus	664	32.	University of Chicago	368
8.	University of California-Los Angeles	605	33.	Rutgers University-New Brunswick	364
9.	Pennsylvania State University-Main Campus	597	34.	Johns Hopkins University	363
10.	Stanford University	595	35.	Yale University	362
11.	Harvard University	560	36.	Virginia Polytechnic Institute & State	359
12.	Nova Southeastern University	543	37.	University of California-Davis	337
13.	Texas A&M University-College Station	528	38.	CUNY-Grad School & University Center	333
14.	Purdue University-Main Campus	496	39.	University of Iowa	327
15.	Massachusetts Institute of Technology	492	40.	North Carolina State University-Raleigh	322
16.	University of Washington	478	41.	Florida State University	306
17.	University of Maryland-College Park	476	42.	University of Virginia-Main Campus	303
17.	Cornell University-Endowed Colleges	476	43.	Iowa State University	300
19.	Columbia University in the City of New York	462	44.	University of Massachusetts-Amherst	298
20.	University of Florida	457	45.	SUNY at Buffalo	294
21.	Michigan State University	436	46.	Arizona State University-Main Campus	292
21.	University of Pennsylvania	436	46.	Temple University	292
23.	New York University	430	48.	University of Kansas-Main Campus	287
24.	University of Arizona	411	49.	University of Nebraska-Lincoln	282
25.	University of Southern California	403	50.	Boston University	278

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX B: Trend Tables, 1988-1998

Appendix B includes the following two tables:

B-1: Number of Doctorate Recipients, by Subfield, 1988-1998

B-2: Number of Doctorate Recipients, by Sex, Race/Ethnicity, and Citizenship, 1978, 1983, and 1988-1998

TABLE B-1: Table B-1 presents data for the most recent decade by subfield of doctorate. In general, the subfields correspond to the fields on the questionnaire's Specialties List located at the back of the survey form in appendix D; some subfields, however, do not appear on the current Specialties List because they are no longer included in the survey taxonomy. A dash (—) in a column indicates that the field was not on the Specialties List for that year.

Field groupings in this table may differ from those in reports published by Federal sponsors of the Survey of Earned Doctorates (SED); see appendix E for a description of field groupings as reported in these tables. The "general" field categories--for example, "chemistry, general"—include individuals who either received the doctorate in the general subject area or did not indicate a particular specialty field. The "other" field categories—for example, "chemistry, other"—include individuals whose specified doctoral discipline was not among the specialty fields.

The seven tables in appendix-A present additional information on the most recent cohort of research doctorate recipients by field of doctorate.

TABLE B-2: Table B-2 displays, by sex and citizenship, data on the race/ethnicity of doctorate recipients for 1978, 1983 ,and the past decade. Table B-2 contains three panels, each displayed on a separate page. The first panel includes all doctorates; the others disaggregate the data by sex.

New follow-up procedures implemented in 1990 and later years have increased coverage of several variables, including citizenship and race/ethnicity. One result has been greater postsurvey adjustment to racial/ethnic data than in earlier years. (Note: The greatest adjustment was to the numbers of black doctorate recipients in 1990 and 1991—an increase of about 7.5 percent each year.)

The racial/ethnic question has undergone several revisions over the years. In 1977 it was modified to correspond to a standard question format recommended by the Federal Interagency Committee on Education and adopted by the Office of Management and Budget (OMB) for use in Federally sponsored surveys; an explanation of the effect of these changes is detailed on page 13 of *Summary Report 1977*. (Note: Changes in the OMB guidelines prompted the moving of persons having origins in the Indian subcontinent from the white category to the Asian category.) In 1980 the item was further revised in two ways: (1) the Hispanic category was subdivided into Puerto Rican, Mexican American, and other Hispanic to provide more detail for users of the racial/ethnic data and (2) respondents were asked to check only one racial category. (Before 1980 doctorate recipients could check more than one category to indicate their race.) The item was modified again 1982 to separate the questions on race and ethnicity. Since then respondents have been asked to first check one of four racial group categories (American Indian, Asian, black, or white) and then indicate whether or not they are Hispanic. In Table B-2, d*octorate recipients who reported Hispanic heritage, regardless of racial designation, are counted as Hispanic.* The remaining survey respondents are then counted in their respective racial groups. (Note: Doctorate recipients who checked the category "American Indian or Alaskan Native" are identified as American Indian in this report.)

Tables A-2 and A-4 in appendix A present additional information on the most recent cohort of doctorate recipients by race/ethnicity.

APPENDIX TABLE B-1. Number of doctorate recipients, by subfield, 1988-1998

	Year of Doctorate										
Subfield	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
TOTAL ALL FIELDS	33,500	34,327	36,067	37,534	38,890	39,801	41,034	41,743	42,414	42,555*	42,683**
PHYSICAL SCIENCES#	5,309	5,455	5,859	6,280	6,502	6,496	6,822	6,808	6,674	6,667	6,739
MATHEMATICS	749	859	892	1,039	1,058	1,146	1,118	1,190	1,122	1,125	1,177
Applied Mathematics	142	158	185	193	213	188	206	211	230	242	265
Algebra	54	50	39	72	69	84	78	82	78	78	75
Analysis and Functional Analysis	76	103	90	132	105	105	107	99	100	103	130
Geometry	44	47	42	66	45	44	35	45	72	70	54
Logic	20	12	19	23	28	19	29	35	16	23	16
Number Theory	26	23	26	30	25	42	37	35	42	46	46
Mathematical Statistics	152	167	157	206	217	228	205	205	178	181	204
Topology	27	37	50	57	58	54	38	51	55	62	65
Computing Theory and Practice	12	12	12	19	12	18	16	14	18	14	18
Operations Research	29	22	29	16	22	37	26	36	21	20	17
Mathematics, General	134	177	191	180	209	276	269	305	233	155	163
Mathematics, Other	33	51	52	45	55	51	72	72	79	131	124
COMPUTER SCIENCE	515	612	705	800	869	880	903	997	921	905	923
Computer Science	442	519	612	720	791	825	833	913	837	824	817
Information Sciences and Systems	73	93	93	80	78	55	70	84	84	81	106
PHYSICS AND ASTRONOMY	1,302	1,274	1,393	1,411	1,537	1,544	1,692	1,652	1,676	1,597	1,584
Astronomy	66	49	52	50	55	76	66	89	84	71	91
Astrophysics	64	64	76	75	79	69	78	84	108	125	117
Acoustics	16	15	21	13	18	27	20	18	19	19	18
Chemical, and Atomic/Molecular	77	74	87	76	85	95	140	110	129	106	99
Electron	2	4	2	1	-	-	-	-	-	-	-
Elementary Particle	174	135	163	182	153	170	176	183	175	170	173
Fluids	17	14	17	14	17	19	12	18	21	24	26
Nuclear	88	81	73	66	86	82	90	91	87	106	92
Optics	65	78	76	85	94	96	104	98	129	123	104
Plasma and High-Temperature	65	61	42	58	65	62	79	46	48	39	55
Polymer	20	7	11	17	17	29	29	23	33	19	24
Solid State and Low-Temperature	252	296	306	372	408	336	388	371	364	328	313
Physics, General	271	269	323	247	297	340	343	355	323	255	190
Physics, Other	125	127	144	155	163	143	167	166	156	212	282
CHEMISTRY	2,015	1,970	2,100	2,194	2,214	2,137	2,257	2,162	2,148	2,143	2,217
Analytical	301	289	293	304	304	286	334	317	346	350	384
Inorganic	250	256	242	260	268	237	262	258	249	277	287
Nuclear	7	6	13	14	7	8	10	5	5	8	5
Organic	531	511	452	538	512	518	544	483	506	564	597
Medicinal/Pharmaceutical	73	64	48	83	69	99	102	96	96	105	115
Physical	318	310	325	364	398	336	334	338	300	334	278
Polymer	81	78	81	111	83	107	117	116	121	110	123
Theoretical	50	46	55	45	59	53	52	40	57	48	41
Chemistry, General	310	312	524	400	449	431	447	458	396	261	286
Chemistry, Other	94	98	67	75	65	62	55	51	72	86	101
EARTH, ATMOS., & MARINE SCI.	728	740	769	836	824	789	852	807	807	897	838
Atmospheric Physics and Chem.	19	15	18	20	36	13	27	27	22	44	38
Atmospheric Dynamics	25	16	20	21	23	23	27	16	21	25	24
Meteorology	35	27	20	31	28	34	32	25	35	28	25
Atmos. Sci./Meteorology, General	14	14	23	26	27	22	37	44	33	36	22
Atmos.Sci./Meteorology, Other	10	15	2	10	6	7	6	18	14	15	16
Geology	144	165	166	192	166	197	194	186	162	164	171
Geochemistry	46	39	56	64	62	50	59	42	49	49	58
Geophysics and Seismology	83	87	91	117	108	101	106	93	101	108	106
Paleontology	24	17	21	24	25	21	17	20	14	23	23
Mineralogy, Petrology	19	36	26	36	29	9	21	19	23	18	14
Stratigraphy, Sedimentation	30	24	25	29	23	28	27	16	12	23	24
Geomorphology and Glacial Geology	9	10	14	18	12	16	13	11	11	26	20
Applied Geology	7	6	6	1	0	0	0	0	0	0	0
Geological & Related Sci., General	8	19	31	30	18	15	18	21	27	16	13
Geological & Related Sci., Other	31	28	28	33	31	17	24	22	22	17	40
Environmental Science	58	68	50	35	57	68	61	81	83	96	73
Hydrology and Water Resources	24	24	13	16	29	25	30	24	31	43	35
Oceanography	81	87	89	85	82	98	91	83	107	114	94
Marine Sciences	28	26	39	27	32	27	34	32	27	30	18
Misc. Physical Sciences, Other	33	17	31	21	30	18	28	27	13	22	24
ENGINEERING	4,187	4,543	4,894	5,214	5,438	5,698	5,822	6,008	6,305	6,098	5,919
Aerospace, Aeronautic. & Astronautic.	150	178	192	207	234	228	230	252	287	270	242
Agricultural	70	102	101	83	84	86	89	73	104	79	73
Bioengineering and Biomedical	114	115	129	149	147	171	173	189	220	210	207
Ceramic Sciences	30	35	43	58	42	42	39	39	41	39	24
Chemical	624	625	561	621	607	624	630	602	681	662	667
Civil	488	498	505	509	540	563	602	572	599	592	587
Communications	24	25	35	21	30	22	33	29	32	33	40
Computer	100	117	131	178	175	167	202	189	208	227	210
Electrical, Electronics	886	995	1,110	1,206	1,278	1,354	1,438	1,513	1,500	1,458	1,343
Engineering Mechanics	105	110	111	113	132	128	132	108	105	93	86
Engineering Physics	9	16	16	23	25	21	17	17	37	24	15
Engineering Science	32	27	37	42	51	55	46	56	52	45	50

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE B-1. Number of doctorate recipients, by subfield, 1988-1998

Subfield	Year of Doctorate										
	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Environmental Health Engineering	43	40	48	66	54	61	82	84	98	63	63
Industrial/Manufacturing	127	162	151	165	196	236	228	284	258	242	227
Materials Science	252	257	307	361	365	416	433	476	470	481	482
Mechanical	610	650	773	762	855	902	883	917	947	924	936
Metallurgical	92	88	90	70	78	77	67	73	61	60	59
Mining and Mineral	17	33	39	38	26	24	23	19	31	33	21
Naval Architecture, Marine Eng.	9	9	8	5	-	-	-	-	-	-	-
Nuclear	104	86	114	107	120	108	85	105	113	102	97
Ocean	21	20	17	21	21	24	29	21	26	34	29
Operations Research	44	68	46	76	56	56	47	48	74	74	62
Petroleum	33	29	49	28	54	52	42	48	52	51	48
Polymer/Plastics	28	58	48	42	64	61	53	58	65	54	59
Systems	44	30	51	48	37	57	51	47	47	49	68
Engineering, General	49	61	75	78	64	47	39	60	60	51	30
Engineering, Other	82	109	107	137	103	116	129	129	137	148	194
LIFE SCIENCES	6,164	6,342	6,605	6,933	7,115	7,395	7,739	7,918	8,255	8,311	8,540
BIOLOGICAL SCIENCES	4,111	4,116	4,328	4,650	4,792	5,092	5,203	5,376	5,723	5,777	5,848
Biochemistry	612	669	678	765	715	846	804	824	794	830	798
Biomedical Sciences	-	-	-	-	-	-	-	93	140	158	184
Biophysics	97	87	103	100	125	103	123	155	142	147	166
Biotechnology Research	-	-	-	-	-	8	14	4	6	11	12
Bacteriology	7	11	15	11	13	14	18	13	16	13	13
Plant Genetics	26	18	31	23	33	41	30	35	41	30	40
Plant Pathology	30	22	37	50	32	41	40	32	38	33	18
Plant Physiology	74	47	51	65	68	48	70	55	73	47	61
Botany, Other	112	117	104	105	107	105	117	102	105	91	113
Anatomy	88	80	70	77	75	76	66	64	47	50	35
Biometrics and Biostatistics	47	46	47	59	63	74	72	67	81	84	75
Cell Biology	118	133	145	149	188	231	237	236	233	250	299
Ecology	155	161	166	189	180	177	201	203	245	255	292
Developmental Biology/Embryology	7	10	22	37	48	57	62	64	96	115	127
Endocrinology	21	21	24	33	27	16	26	20	24	17	30
Entomology	133	139	147	138	139	114	123	121	136	123	138
Biological Immunology	179	152	153	177	181	169	161	190	238	214	245
Molecular Biology	364	413	413	481	527	582	598	617	651	771	741
Microbiology	333	340	335	372	377	433	423	426	444	409	384
Neuroscience	163	181	192	238	238	276	284	309	404	435	412
Nutritional Sciences	127	128	118	106	132	134	147	136	142	124	137
Parasitology	20	20	13	20	17	17	22	14	22	17	15
Toxicology	108	111	91	86	105	100	120	126	138	180	156
Human and Animal Genetics	118	112	153	160	142	172	203	202	212	217	196
Human and Animal Pathology	112	105	101	122	114	130	128	109	135	106	91
Human and Animal Pharmacology	252	242	244	266	279	274	259	278	316	300	256
Human and Animal Physiology	225	272	278	272	266	271	289	262	275	227	258
Zoology, Other	167	132	122	125	134	114	117	145	100	96	111
Biological Sciences, General	256	231	333	278	315	305	288	348	291	208	217
Biological Sciences, Other	160	116	142	146	159	164	161	126	138	219	228
HEALTH SCIENCES	882	974	956	1,041	1,112	1,197	1,296	1,330	1,324	1,422	1,500
Speech-Lang. Pathology & Audiology	93	91	93	90	82	98	95	106	94	88	95
Environmental Health	52	35	38	38	44	38	51	51	58	67	54
Health Systems/Services Admin.	-	-	-	-	-	35	53	62	60	66	63
Public Health	121	129	123	132	157	153	142	152	156	139	157
Epidemiology	97	107	102	115	108	120	168	153	149	151	166
Exercise Physiology/Sci., Kinesiology	-	-	-	-	-	-	87	118	105	105	129
Nursing	247	308	261	325	338	373	336	354	354	420	399
Pharmacy	95	111	116	115	160	146	148	144	145	142	156
Rehabilitation/Therapeutic Services	-	-	-	17	25	36	43	20	26	34	33
Veterinary Medicine	48	48	70	56	63	61	56	55	65	46	48
Health Sciences, General	29	19	36	28	30	38	41	35	22	45	17
Health Sciences, Other	100	126	117	125	105	99	76	80	90	119	183
AGRICULTURAL SCIENCES	1,171	1,252	1,321	1,242	1,204	1,106	1,240	1,212	1,208	1,112	1,192
Agricultural Economics	156	164	145	168	141	137	162	173	169	133	155
Agricultural Business & Management	0	2	2	1	0	1	0	3	2	1	2
Animal Breeding and Genetics	27	23	22	18	23	18	17	19	12	24	18
Animal Nutrition	54	67	54	57	41	52	58	50	54	55	45
Dairy Science	12	16	20	19	14	11	11	14	9	14	10
Poultry Science	10	11	17	13	22	16	21	11	12	9	11
Fisheries Science and Management	42	34	42	39	28	38	48	49	46	45	30
Animal Sciences, Other	86	95	90	92	97	74	86	85	90	61	60
Agronomy and Crop Science	141	140	143	117	123	104	143	114	110	77	96
Plant Breeding and Genetics	83	64	87	69	82	68	81	72	63	67	69
Plant Pathology	46	63	64	90	63	58	55	52	90	65	66
Plant Protection-Pest Management	1	6	4	2	-	-	-	-	-	-	-
Plant Sciences, Other	23	15	23	17	29	28	24	30	21	20	37
Food Sciences	16	1	-	-	-	-	-	-	-	-	-
Food Distribution	0	0	0	0	0	0	1	-	-	-	-
Food Engineering	6	11	10	12	14	9	16	7	7	11	13
Food Sciences, Other	119	147	141	137	151	141	152	135	142	174	153
Soil Sciences	18	-	-	-	-	-	-	-	-	-	-
Soil Chemistry/Microbiology	33	28	27	24	24	26	21	27	29	32	27
Soil Sciences, Other	62	75	91	78	63	59	69	72	78	56	74
Horticulture Science	61	75	101	78	65	62	65	67	73	44	60

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE B-1. Number of doctorate recipients, by subfield, 1988-1998

	Year of Doctorate										
Subfield	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**
Wildlife Management	3	-	-	-	-	-	-	-	-	-	-
Forestry Science	15	-	-	-	-	-	-	-	-	-	-
Forest Biology	21	22	27	17	29	18	20	24	19	22	20
Forest Engineering	3	1	2	2	2	3	0	4	0	13	2
Forest Management	18	21	14	22	16	17	17	20	22	21	27
Wood Sci. & Pulp/Paper Tech.	7	16	16	16	21	20	26	26	18	25	25
Conservation/Renewable Nat. Res.	7	12	16	19	9	13	21	24	13	17	25
Forestry and Related Sci., Other	35	57	62	45	62	55	59	71	56	50	69
Wildlife/Range Management	36	52	58	59	55	54	52	50	64	50	55
Agricultural Sciences, General	9	7	5	3	9	10	4	6	5	8	8
Agricultural Sciences, Other	21	27	38	28	23	14	11	7	4	18	35
SOCIAL SCIENCES (INCL. PSYCH.)	5,781	5,961	6,093	6,152	6,216	6,545	6,613	6,635	6,814	7,037	7,075
Anthropology	325	325	324	341	320	342	384	375	396	431	425
Area Studies	16	17	22	24	33	36	34	27	28	10	14
Criminology	43	32	42	35	37	39	41	44	60	49	55
Demography/Population Studies	19	22	20	28	17	22	23	15	11	24	31
Economics	825	872	836	861	885	906	913	952	979	997	973
Econometrics	27	26	26	24	25	24	26	27	29	31	25
Geography	129	105	131	108	111	137	146	150	165	149	154
International Relations/Affairs	77	94	97	88	76	102	112	73	99	88	97
Political Science and Government	392	430	462	434	513	507	589	600	621	661	662
Public Policy Analysis	73	79	87	111	107	98	94	93	104	126	97
Sociology	449	436	428	465	495	513	525	540	516	574	549
Statistics	47	69	69	31	29	48	46	48	48	56	60
Urban Affairs/Studies	86	62	67	90	86	123	132	103	106	92	75
Social Sciences, General	28	26	23	36	33	32	21	35	26	26	30
Social Sciences, Other	171	158	178	226	186	196	148	124	135	157	147
PSYCHOLOGY	3,074	3,208	3,281	3,250	3,263	3,420	3,379	3,429	3,340	3,440	3,563
Clinical	1,095	1,259	1,337	1,305	1,309	1,373	1,285	1,291	1,325	1,268	1,350
Cognitive and Psycholinguistics	83	79	76	94	101	104	129	104	128	166	113
Comparative	7	8	8	7	2	5	8	4	3	6	6
Counseling	482	501	466	497	507	488	497	470	464	487	448
Developmental and Child	176	148	159	155	170	202	179	152	188	215	267
Human/Individual & Family Develop.	-	-	-	-	-	-	129	150	151	123	118
Experimental	135	146	143	142	154	143	139	151	128	145	149
Educational	103	105	98	110	91	91	69	74	92	61	61
Family and Marriage Counseling	-	-	-	-	-	-	-	57	52	64	51
Industrial and Organizational	118	104	126	142	138	159	137	155	162	185	189
Personality	18	28	20	13	17	22	19	16	24	25	24
Physiological/Psychobiology	85	62	46	45	55	85	93	92	80	77	92
Psychometrics	11	6	8	9	5	9	5	10	11	11	8
Quantitative	12	11	15	7	10	16	17	13	19	17	15
School	115	107	82	82	88	95	84	91	82	84	106
Social	140	128	145	147	139	125	153	155	170	181	186
Psychology, General	368	364	371	324	295	306	280	306	279	319	302
Psychology, Other	126	152	181	171	182	197	156	138	133	129	196
HUMANITIES	3,555	3,552	3,822	4,099	4,444	4,482	4,744	5,061	5,116	5,424	5,499
History, American	209	206	211	251	277	269	310	344	355	372	407
History, Asian	-	-	-	-	-	-	-	43	54	54	70
History, European	127	107	151	127	176	162	180	185	187	245	230
History/Philosophy of Sci. & Tech.	22	20	26	27	28	37	27	41	37	34	43
History, General	103	85	111	121	102	116	140	148	101	82	86
History, Other	142	120	113	137	141	142	144	128	123	176	152
Classics	56	51	58	55	58	61	84	62	72	53	84
Comparative Literature	139	103	97	150	163	153	163	191	164	181	162
Linguistics	166	188	167	227	266	214	221	201	230	244	219
Speech and Rhetorical Studies	37	35	38	86	98	111	142	139	155	137	168
Letters, General	16	13	19	17	18	18	22	43	28	23	22
Letters, Other	43	60	52	44	38	37	25	34	61	60	82
American Studies	70	76	72	92	81	101	88	94	115	82	100
Archeology	23	26	22	33	33	38	34	35	21	35	34
Art History/Criticism/Conservation	134	145	135	125	154	158	102	181	176	186	220
Music	504	521	572	587	641	613	685	713	699	727	694
Philosophy	222	270	243	285	279	274	302	298	369	447	408
Religion	217	215	219	187	231	257	252	248	317	299	327
Drama/Theater Arts	92	79	106	91	95	91	102	80	103	116	91
LANGUAGE AND LITERATURE	1,147	1,152	1,308	1,350	1,465	1,524	1,537	1,718	1,618	1,746	1,718
American	186	192	229	253	291	293	296	327	314	407	388
English	531	528	567	599	612	655	647	752	699	686	688
French	101	106	123	100	124	137	129	151	142	150	137
German	76	73	78	71	96	105	67	93	88	82	106
Italian	14	20	25	32	20	19	32	35	24	23	33
Spanish	137	134	173	173	179	179	212	209	196	250	207
Russian	13	13	19	25	28	28	38	28	37	39	43
Slavic	5	7	7	14	15	13	10	16	11	9	15
Chinese	12	9	16	19	20	21	25	20	29	23	18
Japanese	6	13	9	7	12	11	12	7	10	19	11
Hebrew	12	10	14	11	20	15	10	11	12	7	8
Arabic	14	6	7	4	12	10	4	8	6	4	9
Other Language and Literature	40	41	41	42	36	38	55	61	50	47	55

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE B-1. Number of doctorate recipients, by subfield, 1988-1998

	Year of Doctorate										
Subfield	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Humanities, General	25	19	28	29	21	30	32	25	39	25	23
Humanities, Other	61	61	74	78	79	76	72	110	92	100	159
EDUCATION	6,362	6,281	6,510	6,454	6,677	6,689	6,708	6,649	6,772	6,549	6,559
Curriculum and Instruction	815	841	839	807	900	856	819	896	896	914	885
Educational Admin. and Supervision	1,749	1,633	1,663	1,428	1,290	1,340	1,207	1,086	1,170	1,016	949
Educational Leadership	0	0	1	485	694	783	792	889	989	1,033	1,114
Educ./Instruct. Media Design	67	76	55	73	62	96	111	121	107	92	91
Educ. Stat./Research Methods	51	59	59	80	61	64	68	63	76	58	56
Educ.Assess., Test., & Meas.	55	42	40	32	45	23	28	19	32	30	35
Educational Psychology	323	301	323	323	346	290	311	297	309	360	325
School Psychology	98	85	87	90	88	86	97	71	114	115	112
Social/Phil. Found. of Educ.	122	110	86	109	101	109	140	130	125	138	129
Special Education	257	259	225	226	260	277	241	254	278	268	248
Counseling Educ./Couns. & Guidance	325	264	301	270	259	288	284	268	277	207	269
Higher Educ./ Evaluation & Research	399	373	424	344	381	357	428	457	481	504	430
Pre-elementary/Early Childhood	83	63	42	85	98	97	91	70	81	42	54
Elementary Education	93	99	110	73	73	65	71	61	46	56	62
Junior High Education	1	-	-	-	-	-	-	-	-	-	-
Secondary Education	67	53	56	40	28	33	24	24	34	25	55
Adult and Continuing Education	229	236	211	210	208	233	215	235	210	182	168
TEACHING FIELDS	989	970	922	973	1,008	943	960	924	863	905	951
Agricultural Education	32	35	38	49	43	54	52	35	32	38	25
Art Education	42	39	44	28	46	38	33	39	41	30	46
Business Education	44	40	34	32	16	27	25	21	20	25	30
English Education	57	51	52	58	61	53	56	60	57	62	53
Foreign Languages Education	53	33	31	46	50	48	54	60	44	45	73
Health Education	86	100	95	78	98	83	97	99	90	58	70
Home Economics Education	17	19	10	21	12	14	11	15	13	13	8
Technical/Industrial Arts Education	11	17	17	13	11	16	20	15	11	19	30
Mathematics Education	56	69	65	73	62	69	74	92	100	91	115
Music Education	76	97	78	96	96	80	89	96	91	100	94
Nursing Education	34	29	24	18	29	19	24	18	23	22	14
Physical Education and Coaching	184	176	191	185	167	161	139	104	101	108	108
Reading Education	74	95	82	102	121	95	97	85	68	68	77
Science Education	67	48	72	72	73	73	85	73	96	76	109
Social Science Education	23	13	11	19	19	9	10	14	12	25	15
Speech Education	5	1	5	1	-	-	-	-	-	-	-
Technical Education	13	28	15	25	35	21	30	20	24	32	18
Trade and Industrial Education	67	47	18	17	11	24	24	13	12	16	14
Teacher Ed./Spec. Acad. & Voc., Other	48	33	40	40	58	59	40	65	30	77	52
Education, General	358	414	535	428	443	411	484	429	353	338	235
Education, Other	281	403	531	378	332	338	337	355	331	288	391
PROFESSIONAL/OTHER FIELDS	2,142	2,193	2,284	2,402	2,498	2,496	2,586	2,664	2,478	2,452	2,332
BUSINESS AND MANAGEMENT	1,033	1,067	1,036	1,163	1,248	1,281	1,283	1,327	1,276	1,238	1,165
Accounting	175	186	172	172	180	183	179	168	156	150	154
Banking/Financial Support Services	148	151	134	172	172	170	134	163	114	69	83
Business Admin. and Management	265	245	277	204	241	324	319	340	393	421	342
Business/Managerial Economics	27	27	21	19	21	33	40	37	38	47	56
International Business	-	-	-	-	-	-	22	23	36	39	33
Mgmt. Info. Sys./Business Data Proc.	-	-	-	72	103	102	117	111	94	100	86
Marketing Management and Research	126	130	120	134	139	166	167	153	153	153	143
Business Statistics	6	15	10	5	-	-	-	-	-	-	-
Operations Research	50	52	46	58	67	63	54	59	64	44	57
Organizational Behavior	74	95	64	72	81	73	102	100	108	121	103
Bus. Mgmt./Admin. Serv., General	75	57	70	123	112	87	87	92	67	28	36
Bus. Mgmt./Admin. Serv., Other	87	109	122	132	132	80	62	81	53	64	72
COMMUNICATIONS	247	306	323	332	330	321	371	380	369	332	372
Communications Research	72	85	87	72	45	33	40	40	60	51	52
Journalism	21	15	21	7	-	-	-	-	-	-	-
Mass Communications	-	-	-	68	85	117	156	121	137	117	141
Radio and Television	12	29	17	6	-	-	-	-	-	-	-
Communication Theory	-	-	-	25	47	41	45	53	37	40	48
Communications, General	70	79	86	70	76	69	68	77	81	74	62
Communications, Other	72	98	112	84	77	61	62	89	74	50	69
OTHER PROFESSIONAL FIELDS	812	766	858	836	880	867	891	931	774	770	721
Architectural Environmental Design	31	43	41	67	60	54	67	55	61	65	51
Home Economics	58	55	74	29	58	57	31	31	28	35	17
Law	33	26	34	23	20	29	33	37	26	27	31
Library Science	57	60	42	52	51	70	42	47	49	40	34
Parks/Recreation/Leisure/Fitness	-	-	-	-	-	44	37	54	29	24	36
Public Administration	92	97	88	107	108	117	135	128	104	95	105
Social Work	241	206	246	240	248	237	272	303	256	247	236
Theology/Religious Education	251	232	271	273	292	243	262	273	213	177	160
Professional Fields, General	2	0	3	3	1	1	1	1	2	4	0
Professional Fields, Other	47	47	59	42	42	15	11	2	6	56	51
OTHER/UNKNOWN FIELDS	50	54	67	71	40	27	41	26	39	131	94

#Includes mathematics and computer sciences. *Total includes 17 respondents with missing data for doctoral field. **Includes 20 respondents with missing data for doctoral field.
NOTE: Dash (-) indicates that the field was not on the questionnaire's Specialties List that year. Field groupings may differ from those in reports published by federal sponsors of the Survey of Earned Doctorates.
Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE B-2a. Number of doctorate recipients, by gender, race/ethnicity, and citizenship, 1978,1983, 1988-1998 (Total all doctorates)

	Year of Doctorate												
	1978	1983	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
TOTAL MEN AND WOMEN*	30,875	31,281	33,500	34,327	36,067	37,534	38,890	39,801	41,034	41,743	42,414	42,555	42,683
U.S. Citizen	25,291	24,360	23,290	23,401	24,905	25,573	26,010	26,449	27,147	27,740	27,741	27,934	28,218
Permanent Visa	1,344	1,274	1,622	1,626	1,698	1,857	1,980	2,259	3,747	4,319	3,765	2,928	2,696
Temporary Visa	3,421	4,498	6,195	6,648	8,093	9,311	9,953	9,932	9,406	8,810	9,610	8,478	8,642
Unknown Citizenship	819	1,149	2,393	2,652	1,371	793	947	1,161	734	874	1,298	3,215	3,127
Total Known Race/Ethnicity	28,451	29,397	30,354	30,955	33,878	35,780	37,193	38,284	39,834	40,330	40,636	38,847	39,293
U.S. Citizen	23,778	23,740	22,907	23,025	24,531	25,085	25,657	26,217	26,893	27,437	27,398	26,880	27,352
Permanent Visa	1,313	1,248	1,545	1,564	1,637	1,796	1,906	2,225	3,699	4,278	3,733	2,867	2,607
Temporary Visa	3,246	4,253	5,840	6,297	7,557	8,788	9,535	9,675	9,114	8,544	9,363	8,251	8,371
Unknown Citizenship	114	156	62	69	153	111	95	167	128	71	142	849	963
American Indian†	61	82	94	94	98	132	152	121	146	149	189	166	189
U.S. Citizen	60	81	94	94	97	130	149	120	143	149	186	166	189
Permanent Visa★	0	1	0	0	0	2	0	0	0	0	1	0	0
Temporary Visa★	1	0	0	0	1	0	2	1	3	0	2	0	0
Unknown Citizenship	0	0	0	0	0	0	1	0	0	0	0	0	0
Asian‡	2,394	3,123	4,780	5,192	6,293	7,528	8,290	8,671	9,367	9,708	9,821	9,004	8,575
U.S. Citizen	390	492	614	633	641	789	848	891	950	1,140	1,091	1,296	1,168
Permanent Visa	642	550	621	635	665	742	916	1,126	2,596	3,169	2,606	1,814	1,552
Temporary Visa	1,311	2,006	3,518	3,907	4,931	5,949	6,505	6,604	5,799	5,378	6,093	5,483	5,388
Unknown Citizenship	51	75	27	17	56	48	21	50	22	21	31	411	467
Black	1,381	1,384	1,267	1,247	1,354	1,466	1,434	1,615	1,683	1,825	1,837	1,769	1,903
U.S. Citizen	1,031	922	818	822	901	1,010	971	1,111	1,101	1,309	1,315	1,336	1,467
Permanent Visa	73	83	152	141	149	156	145	169	178	168	142	139	119
Temporary Visa	269	365	291	273	291	293	311	322	389	337	364	250	254
Unknown Citizenship	8	14	6	11	13	7	7	13	15	11	16	44	63
Hispanic	861	969	1,048	1,063	1,228	1,319	1,402	1,431	1,534	1,541	1,623	1,686	1,866
U.S. Citizen	486	539	595	582	721	731	778	834	884	919	950	1,047	1,190
Permanent Visa	67	69	98	112	116	136	131	139	146	142	155	136	121
Temporary Visa	293	342	349	363	386	446	482	454	502	472	512	436	490
Unknown Citizenship	15	19	6	6	5	6	11	4	2	8	6	67	65
White	23,754	23,839	23,165	23,359	24,905	25,335	25,915	26,446	27,104	27,107	27,166	26,222	26,760
U.S. Citizen	21,811	21,706	20,786	20,894	22,171	22,425	22,911	23,261	23,815	23,920	23,856	23,035	23,338
Permanent Visa	531	545	674	676	707	760	714	791	779	799	829	778	815
Temporary Visa	1,372	1,540	1,682	1,754	1,948	2,100	2,235	2,294	2,421	2,357	2,392	2,082	2,239
Unknown Citizenship	40	48	23	35	79	50	55	100	89	31	89	327	368
Unknown Race/Ethnicity	2,424	1,884	3,146	3,372	2,189	1,754	1,697	1,517	1,200	1,413	1,778	3,708	3,390
U.S. Citizen	1,513	620	383	376	374	488	353	232	254	303	343	1,054	866
Permanent Visa	31	26	77	62	61	61	74	34	48	41	32	61	89
Temporary Visa	175	245	355	351	536	523	418	257	292	266	247	227	271
Unknown Citizenship	705	993	2,331	2,583	1,218	682	852	994	606	803	1,156	2,366	2,164

★In most cases, non-U.S. American Indians are citizens of Canada or of a Latin American country.
*Total includes individuals who did not report sex.
†Includes Alaskan Native.
‡Includes Pacific Islander.

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

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APPENDIX TABLE B-2b. Doctorates: MEN

	Year of Doctorate												
	1978	1983	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
TOTAL MEN	22,553	20,748	21,680	21,814	22,960	23,525	24,235	24,382	25,058	25,158	25,267	24,944	24,653
U.S. Citizen	17,936	15,121	13,724	13,396	14,165	14,385	14,518	14,512	14,732	14,965	14,700	14,915	14,750
Permanent Visa	1,052	952	1,164	1,139	1,189	1,223	1,290	1,468	2,636	2,908	2,483	1,831	1,662
Temporary Visa	2,966	3,871	5,134	5,444	6,632	7,506	7,946	7,835	7,306	6,840	7,384	6,454	6,418
Unknown Citizenship	599	804	1,658	1,835	974	411	481	567	384	445	700	1,744	1,823
Total Known Race/Ethnicity	20,747	19,376	19,410	19,404	21,338	22,353	23,164	23,529	24,319	24,300	24,228	22,975	22,689
U.S. Citizen	16,822	14,677	13,448	13,117	13,899	14,030	14,261	14,343	14,563	14,754	14,473	14,323	14,242
Permanent Visa	1,029	930	1,097	1,094	1,149	1,177	1,236	1,444	2,602	2,884	2,460	1,794	1,603
Temporary Visa	2,817	3,648	4,822	5,143	6,174	7,072	7,605	7,641	7,093	6,628	7,201	6,276	6,218
Unknown Citizenship	79	121	43	50	116	74	62	101	61	34	94	582	626
American Indian†	51	51	52	49	52	74	82	61	74	82	103	77	104
U.S. Citizen	50	50	52	49	52	74	82	60	71	82	102	77	104
Permanent Visa★	0	1	0	0	0	0	0	0	0	0	0	0	0
Temporary Visa★	1	0	0	0	0	0	0	1	3	0	1	0	0
Unknown Citizenship	0	0	0	0	0	0	0	0	0	0	0	0	0
Asian‡	1,972	2,541	3,845	4,163	5,030	5,872	6,417	6,603	7,060	7,105	7,200	6,422	6,032
U.S. Citizen	287	312	414	446	427	482	531	552	590	670	614	740	643
Permanent Visa	531	430	456	459	481	489	604	732	1,877	2,198	1,784	1,143	986
Temporary Visa	1,114	1,731	2,957	3,245	4,077	4,865	5,264	5,282	4,576	4,222	4,779	4,245	4,063
Unknown Citizenship	40	68	18	13	45	36	18	37	17	15	23	294	340
Black	900	835	699	685	733	788	771	840	889	881	933	860	820
U.S. Citizen	582	413	317	328	351	421	396	441	411	490	535	524	520
Permanent Visa	65	73	126	125	128	131	123	138	142	125	106	108	87
Temporary Visa	251	341	251	222	243	232	246	251	329	261	286	194	174
Unknown Citizenship	2	8	5	10	11	4	6	10	7	5	6	34	39
Hispanic	649	635	678	662	760	806	860	874	866	911	931	976	1,055
U.S. Citizen	330	288	321	307	380	370	410	423	438	460	478	535	606
Permanent Visa	54	45	64	69	69	88	72	94	80	79	86	82	71
Temporary Visa	254	288	288	283	309	344	371	356	346	369	363	311	344
Unknown Citizenship	11	14	5	3	2	4	7	1	2	3	4	48	34
White	17,175	15,314	14,136	13,845	14,763	14,813	15,034	15,151	15,430	15,321	15,061	14,640	14,678
U.S. Citizen	15,573	13,614	12,344	11,987	12,689	12,683	12,842	12,867	13,053	13,052	12,744	12,447	12,369
Permanent Visa	379	381	451	441	471	469	437	480	503	482	484	461	459
Temporary Visa	1,197	1,288	1,326	1,393	1,545	1,631	1,724	1,751	1,839	1,776	1,772	1,526	1,637
Unknown Citizenship	26	31	15	24	58	30	31	53	35	11	61	206	213
Unknown Race/Ethnicity	1,806	1,372	2,270	2,410	1,622	1,172	1,071	853	739	858	1,039	1,969	1,964
U.S. Citizen	1,114	444	276	279	266	355	257	169	169	211	227	592	508
Permanent Visa	23	22	67	45	40	46	54	24	34	24	23	37	59
Temporary Visa	149	223	312	301	458	434	341	194	213	212	183	178	200
Unknown Citizenship	520	683	1,615	1,785	858	337	419	466	323	411	606	1,162	1,197

★In most cases, non-U.S. American Indians are citizens of Canada or of a Latin American country.
†Includes Alaskan Native.
‡Includes Pacific Islander.
Source:NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX TABLE B-2c. Doctorates: WOMEN

	1978	1983	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
TOTAL WOMEN	8,322	10,533	11,819	12,513	13,106	13,873	14,436	15,122	15,819	16,414	16,945	17,251	17,856
U.S. Citizen	7,355	9,239	9,566	10,005	10,740	11,185	11,491	11,932	12,412	12,773	13,041	12,990	13,452
Permanent Visa	292	322	458	487	508	633	687	788	1,110	1,410	1,282	1,096	1,018
Temporary Visa	455	627	1,061	1,204	1,461	1,794	1,990	2,069	2,076	1,952	2,215	2,015	2,212
Unknown Citizenship	220	345	734	817	397	261	268	333	221	279	407	1,150	1,174
Total Known Race/Ethnicity	7,704	10,021	10,944	11,551	12,539	13,417	14,016	14,736	15,500	16,022	16,403	15,859	16,579
U.S. Citizen	6,956	9,063	9,459	9,908	10,632	11,053	11,396	11,872	12,327	12,683	12,925	12,554	13,107
Permanent Visa	284	318	448	470	487	619	669	779	1,096	1,393	1,273	1,072	996
Temporary Visa	429	605	1,018	1,154	1,383	1,708	1,920	2,021	2,013	1,910	2,158	1,966	2,142
Unknown Citizenship	35	35	19	19	37	37	31	64	64	36	47	267	334
American Indian†	10	31	42	45	46	58	70	60	72	67	86	89	85
U.S. Citizen	10	31	42	45	45	56	67	60	72	67	84	89	85
Permanent Visa★	0	0	0	0	0	2	0	0	0	0	1	0	0
Temporary Visa★	0	0	0	0	1	0	2	0	0	0	1	0	0
Unknown Citizenship	0	0	0	0	0	0	1	0	0	0	0	0	0
Asian‡	422	582	935	1,029	1,262	1,648	1,862	2,054	2,297	2,596	2,616	2,575	2,527
U.S. Citizen	103	180	200	187	214	306	317	338	359	470	477	555	524
Permanent Visa	111	120	165	176	183	253	311	392	718	970	822	671	559
Temporary Visa	197	275	561	662	854	1,077	1,231	1,312	1,217	1,150	1,310	1,232	1,318
Unknown Citizenship	11	7	9	4	11	12	3	12	3	6	7	117	126
Black	481	549	568	562	621	678	663	773	792	944	904	909	1,081
U.S. Citizen	449	509	501	494	550	589	575	670	690	819	780	812	947
Permanent Visa	8	10	26	16	21	25	22	31	36	43	36	31	31
Temporary Visa	18	24	40	51	48	61	65	70	59	76	78	56	80
Unknown Citizenship	6	6	1	1	2	3	1	2	7	6	10	10	23
Hispanic	212	334	370	401	468	513	542	556	668	630	692	710	809
U.S. Citizen	156	251	274	275	341	361	368	411	446	459	472	512	583
Permanent Visa	13	24	34	43	47	48	59	45	66	63	69	54	50
Temporary Visa	39	54	61	80	77	102	111	97	156	103	149	125	145
Unknown Citizenship	4	5	1	3	3	2	4	3	0	5	2	19	31
White	6,579	8,525	9,029	9,514	10,142	10,520	10,879	11,293	11,671	11,785	12,105	11,576	12,077
U.S. Citizen	6,238	8,092	8,442	8,907	9,482	9,741	10,069	10,393	10,760	10,868	11,112	10,586	10,968
Permanent Visa	152	164	223	235	236	291	277	311	276	317	345	316	356
Temporary Visa	175	252	356	361	403	468	511	542	581	581	620	553	599
Unknown Citizenship	14	17	8	11	21	20	22	47	54	19	28	121	154
Unknown Race/Ethnicity	618	512	875	962	567	456	420	386	319	392	542	1,392	1,277
U.S. Citizen	399	176	107	97	108	132	95	60	85	90	116	436	345
Permanent Visa	8	4	10	17	21	14	18	9	14	17	9	24	22
Temporary Visa	26	22	43	50	78	86	70	48	63	42	57	49	70
Unknown Citizenship	185	310	715	798	360	224	237	269	157	243	360	883	840

★In most cases, non-U.S. American Indians are citizens of Canada or of a Latin American country.
†Includes Alaskan Native.
‡Includes Pacific Islander.

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX C: Technical Notes

I. Survey Response Rates

SURVEY RESPONSE RATES*

Year	Self-Report Rate	Year	Self-Report Rate
1967	97.3	1983	95.5
1968	97.6	1984	95.1
1969	96.6	1985	94.8
1970	98.1	1986	93.5
1971	97.5	1987	93.1
1972	97.3	1988	92.9
1973	97.5	1989	92.3
1974	94.2	1990	93.6
1975	97.3	1991	94.6
1976	97.2	1992	95.1
1977	96.6	1993	94.7
1978	96.3	1994	94.6
1979	96.4	1995	94.1
1980	96.2	1996	92.8
1981	95.7	1997	91.5
1982	95.3	1998	91.5

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* The rates for 1967-97 reflect late responses. The rate for 1998 may increase slightly in the next year if additional questionnaires are received after survey closure. Self-report rates for 1980-98 are determined from the "source of response" indicator in the doctorate records. Because this indicator was not coded prior to 1980, survey forms for 1965-79 are assumed to be self-reported if "month signed" or "marital status" is present. "Marital status" is not available from sources other than the doctorate recipient.

As shown in the table above, 91.5 percent of 1998 U.S doctorate recipients completed survey forms. This percentage is what has been referred to as the "self-report" rate. For the remaining doctorate recipients, "skeleton" records were created using basic information obtained from doctorate-granting institutions or from commencement programs. This skeleton information includes Ph.D. institution, Ph.D. field, Ph.D. year, and sex of Ph.D. recipient. It should be noted that the sex variable was not always available, even for survey respondents. Every effort was made to obtain this information for as many respondents as possible, but for a small percentage, this could not be done with confidence. Thus, you will notice that there are missing data for many of the tabulations involving sex in this year's report. Prior to 1997, whenever sex was missing, the data were assigned to "male." In 1997, it was decided to discontinue this practice. The tabulations involving sex for 1997 and 1998 exclude missing cases except where noted otherwise.

Wherever possible this report includes data from all Ph.D. records whether complete or skeletal; thus the reported total number of Ph.D. recipients for 1998 (42,683) includes both respondents and non-respondents. It should also be noted that, in keeping with the practice of earlier data collection cycles, counts for previous years were corrected by the addition of data from surveys received after the close of data collection for a given year. In this year's cycle, this will particularly affect the 1997 data and analysis because, in addition to the changes engendered by adding data from questionnaires for 1997 doctorate recipients that arrived after the 1997 closing date, 150 cases originally coded as 1997 doctorate recipients were determined actually to have received their doctorates in the 1998 academic year and were recoded accordingly. This has an effect not only on the overall count of doctorate recipients for 1997 but on the response rates and analyses of individual variables, most notably on the variable PHDFIELD, which indexes field of doctorate. The reader will therefore note differences in the values reported for 1997 in the trend tables of this year's summary report compared to the *1997 Summary Report*. For comparison, both the original and revised response rates for 1997 are included in the table of response rates shown below.

II. Item Response Rates

The table on the following pages shows the response rates for each item in the Survey of Earned Doctorates for 1988 through 1998. The numbers and percentages shown in the tables and figures in the body of the summary report are based only on the number of doctorate recipients who responded to the applicable survey items. For cross-tabulations, the response rate for a given tabulation will be no greater than the lowest response rate for the items involved in the tabulation.

For additional technical information on the Survey of Earned Doctorates, please contact

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II. ITEM RESPONSE RATES, 1988-1998

Variable Name	Field	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997 (Prelim)	1997 (Adjusted)	1998 (Prelim)
PHDFICE	Ph.D. FICE Code	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	NA	NA	NA
RACE[a]	Race/Ethnic Group (Recoded)	90.6	90.2	93.9	95.3	95.6	96.2	97.1	96.6	95.8	92.5	92.9	93.3
PHDENTRY	First Grad. Year in Ph.D. Instn.	NA	NA	NA	NA	NA	86.9	86.7	86.5	85.5	78.4	78.3	83.3
SRCE1ED[b]	Primary Source of Support (Edited)	83.3	82.5	78.1	77.6	69.7	66.2	72.4	74.9	87.9	87.2	87.1	88.1
PDWK1ED[c]	Primary Work Activity (Edited)	61.4	61.4	56.2	55.9	55.7	54.7	56.3	56.6	60.8	60.0	59.9	60.8
		(92.6)	(92.4)	(83.8)	(83.8)	(83.5)	(83.3)	(86.1)	(86.8)	(93.3)	(94.4)	(92.8)	(93.0)
PDWK2ED[c]	Secondary Work Activity (Edited)	38.9	39.2	39.5	39.5	37.4	36.7	38.2	38.4	48.5	51.4	51.3	52.0
		(58.6)	(58.9)	(58.9)	(59.3)	(56.0)	(55.8)	(58.4)	(58.8)	(74.4)	(80.9)	(79.6)	(79.7)
EDFATHER	Father's Education	88.8	88.3	90.8	92.3	93.1	92.7	92.7	92.3	91.4	88.8	88.7	89.4
EDMOTHER	Mother's Education	88.2	87.5	90.5	92.2	93.0	92.6	92.5	92.1	91.6	89.1	89.0	89.6
BIRTHYR	Year of Birth	95.8	92.4	96.6	98.2	97.7	97.3	98.2	97.5	96.8	92.5	92.8	92.5
BIRTHPL	Place of Birth	92.5	91.8	92.1	94.1	95.1	94.9	94.8	94.5	93.0	89.9	89.8	90.5
SEX	Sex	100.0	100.0	100.0	99.6	99.4	99.2	99.6	99.6	99.5	99.1	99.2	99.6
MARITAL	Marital Status	91.6	91.0	91.7	91.5	92.0	91.6	91.5	91.0	91.6	88.6	88.5	89.9
DEPENDS	Number of Dependents	85.8	85.8	90.0	89.5	89.8	89.8	89.7	89.4	89.4	87.6	87.5	88.4
CITIZ	Citizenship	92.9	92.3	96.2	97.9	97.6	97.1	98.2	97.9	96.9	91.5	92.4	92.7
CNTRYCIT[c]	Country of Citizenship	20.8	21.7	26.4	29.2	30.3	30.2	31.9	31.3	31.3	25.7	25.6	26.3
		(89.3)	(90.1)	(97.2)	(98.0)	(98.5)	(98.6)	(99.3)	(99.4)	(98.5)	(96.5)	(95.3)	(99.0)

NOTE: NA = not available.

[a] The percentage represents the race/ethnic groups standardly reported by the Doctorate Data Project; multiple and "other" races are excluded.

[b] As of FY 1996, the percentage includes recipients who said they had no primary source of support.

[c] The percentages on the first line are based on the total doctoral cohort for a fiscal year. The percentages on the second line (enclosed in parentheses) are based on the number of recipients who reported plans for postdoctoral employment.

II. ITEM RESPONSE RATES, 1988-1998 continued

Variable Name	Field	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997 (Prelim)	1997 (Adjusted)	1998 (Prelim)
RACERAW[a]	Race/Ethnic Group	90.6	90.2	93.9	95.3	95.6	96.2	97.1	96.6	95.8	92.5	92.8	93.3
HANDICAP[b]	Handicap Indic. (incl. "No" from 1989-present)	1.7	91.0	92.4	93.4	93.9	93.6	93.7	93.3	91.7	89.4	89.3	97.9
HSPLACE	Place of High School	90.6	89.8	90.8	93.5	94.5	94.0	93.9	93.5	92.1	89.5	89.4	90.5
HSYEAR	Year of H.S. Graduation	89.2	88.5	90.5	90.9	92.1	92.1	91.7	91.6	90.4	88.3	88.3	93.8
JRCOLL	Jr. Coll. Indic. (incl. "No")	90.2	89.1	90.8	92.0	92.7	92.9	92.5	92.3	90.5	90.8	90.7	99.9
REGNURSE[c]	Registered Nurse	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
CEPLACE	Place of College Entrance	90.5	90.3	90.8	91.8	92.7	92.8	92.3	92.1	90.5	81.9	81.8	90.1
CEYEAR	Year of College Entrance	89.7	89.3	90.1	91.3	92.2	91.7	91.5	91.2	89.0	82.0	81.9	88.4
BAINST	Baccalaureate Institution	96.1	94.4	95.7	96.5	96.4	96.3	96.6	95.8	94.9	88.6	89.0	90.4
BAFIELD	Field of Baccalaureate	90.6	90.3	91.0	92.3	92.4	91.9	91.6	90.9	89.2	82.1	82.0	83.9
BAYEAR	Year of Baccalaureate	95.4	93.2	95.0	95.5	96.0	95.7	96.2	95.5	94.7	87.7	88.1	89.9
BANONE[d]	No Baccalaureate/Master's	0.7	0.6	1.1	1.1	0.9	8.6[d]	9.1[d]	9.7[d]	11.4[d]	6.9[d]	6.9[d]	8.1[d]
GEYEAR	Year of Graduate Entrance	88.5	88.2	86.6	89.4	89.5	88.6	88.2	87.4	85.7	76.7	76.6	81.1
MAINST	Master's Institution	78.3	77.5	78.2	78.4	79.0	78.6	78.9	78.0	77.2	72.0	71.9	72.8
MAFIELD	Field of Master's	75.3	74.6	75.5	76.3	77.0	76.1	76.1	75.3	74.5	68.3	68.2	70.1
MAYEAR	Year of Master's	76.7	75.9	76.7	77.1	77.7	77.0	77.1	76.3	75.5	70.7	70.6	72.5

NOTE: NA = not available.

[a] The percentage represents the race/ethnic groups standardly reported by the Doctorate Data Project; multiple and "other" races are excluded.

[b] The percentages from 1985-1988 represent the numbers of Ph.D.s with handicaps. Beginning in 1989, the response rates include Ph.D.s who reported "no" handicap. Note: The definition of "handicapped" was much more restrictive in 1990 and 1991.

[c] Because this field is not applicable to all doctorate recipients, the response rate will always be under 100%.

[d] Because this field is not applicable to all doctorate recipients, the response rate will always be under 100%. Note; "No Baccalaureate/Master's" represents only "no baccalaureate" from 1983 to 1992. Beginning in 1993, it indicates that the Ph.D. held no baccalaureate and/or master's degree.

II. ITEM RESPONSE RATES, 1988-1998 continued

Variable Name	Field	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997 (Prelim)	1997 (Adjusted)	1998 (Prelim)
PROFDEG[a]	Type Professional Doctorate	1.1	1.3	1.3	1.6	1.6	1.6	1.7	1.8	1.9	1.9	1.9	1.2
PROFYEAR[a]	Year Professional Doctorate	1.1	1.3	1.3	1.6	1.5	1.6	1.7	1.8	1.9	1.7	1.8	2.8
PHDINST	Doctorate Institution	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PHDFIELD	Field of Doctorate	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	98.5	100.0	100.0
PHDCY	Calendar Year of Doctorate	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PHDMONTH	Month of Doctorate	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PHDFY	Fiscal Year of Doctorate	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
PHDTYPE1	Type of Doctorate	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	95.0	100.0	100.0
PHDTYPE2[a]	Applied Research Doctorate	3.1	2.8	2.6	2.3	2.4	2.4	2.7	2.5	2.2	0.9	0.9	1.0
TOCEBA[a]	Time Out CE-BA	88.3	88.0	88.5	89.7	90.5	89.7	89.7	88.9	86.7	82.1	82.0	82.6
TOBAGE[a]	Time Out BA-GE	88.6	88.3	86.6	89.5	89.6	88.6	88.2	87.4	85.7	76.7	76.6	81.1
TOGEMA[a]	Time Out GE-MA	72.4	71.7	72.2	73.3	74.0	73.1	73.1	72.0	70.4	61.3	61.2	63.6
TOMAPHD[a]	Time Out MA-Ph.D.	71.4	70.1	65.2	69.9	71.1	69.9	70.0	69.0	68.1	67.5	67.5	65.1
TOGEPHD	Time Out GE-Ph.D.	85.7	84.7	77.4	84.0	84.5	83.1	82.5	81.8	80.2	75.9	75.8	74.9
TICEPHD	Time In CE-Ph.D.	85.2	84.1	76.7	83.4	84.3	83.0	82.9	82.4	80.8	75.1	75.0	78.0
YEARSFT	Full-time enrollment	71.2	69.3	83.1	73.9	75.7	75.7	75.2	74.5	77.1	82.1	82.0	89.4
YEARSPT	Part-time enrollment	71.2	69.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
YEARSOUT	Not enrolled	71.2	69.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PHDDISS[b]	Field of Dissertation	91.0	89.8	NA	NA	65.0[b]	92.7	93.3	92.4	92.0	88.5	88.4	89.8
SRCEPRIM[c]	Primary Source of Support	72.3	71.7	75.8	77.7	69.7	66.1	72.4	74.9	87.9[c]	87.2	87.1	88.2
DEBTIND	Debt Indicator (incl. "No")	90.8	90.9	92.2	93.1	93.3	92.8	92.8	92.4	91.1	NA	NA	NA
PRESTAT	Predoctoral Status	91.2	90.7	92.4	93.5	93.5	93.1	92.9	92.5	91.7	87.6	87.5	89.7
PDOCSTAT	Postdoctoral Status	90.2	89.6	90.7	91.6	92.1	91.8	91.7	91.0	90.9	88.3	88.2	89.3
PDOCPLAN	Postdoctoral Plans	89.8	89.4	91.3	92.1	92.5	92.4	92.4	91.8	91.2	86.5	86.4	87.6

NOTE: NA = not available

---

[a] Because this field is not applicable to all doctorate recipients, the response rate will always be under 100%.

[b] The percentage was low in 1992 because 28% of the Ph.D.s completed earlier survey forms that did not request field of dissertation.

[c] As of FY 1996, the percentage included recipients who said they had no primary source of support.

II. ITEM RESPONSE RATES, 1988-1998 continued

Variable Name	Field	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997 (Prelim)	1997 (Adjusted)	1998 (Prelim)
PDREASON	Reason for Postdoctoral Appointment	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PDSTDFLD[a]	Postdoctoral Study Field	22.6	21.9	23.2	24.4	24.3	25.1	25.3	25.0	25.4	25.4	25.4	25.4
		(95.0)	(94.7)	(95.2)	(95.1)	(93.4)	(94.0)	(93.8)	(93.9)	(97.4)	(99.0)	(99.0)	(96.0)
PDSTDSUP[a]	Sources of Study Support	22.3	21.6	22.4	24.0	24.2	24.7	25.1	24.6	24.7	24.8	24.5	25.2
		(93.8)	(93.6)	(91.8)	(93.4)	(92.9)	(92.4)	(93.1)	(92.5)	(94.9)	(99.9)	(100.0)	(95.8)
PDEMPLOY[b]	Type of Employer	63.5	63.9	63.6	63.3	62.9	61.4	61.1	60.9	61.4	59.8	59.7	61.7
		(95.7)	(96.1)	(94.9)	(94.9)	(94.3)	(93.5)	(93.5)	(93.4)	(94.2)	(94.1)	(92.7)	(94.4)
PDWKPRIM[b]	Primary Work Activity	61.4	61.4	56.2	55.9	55.7	54.7	56.3	56.6	60.8	60.1	60.0	61.0
		(92.6)	(92.4)	(83.8)	(83.8)	(83.5)	(83.3)	(86.1)	(86.8)	(93.3)	(94.5)	(93.0)	(93.2)
PDWKSEC[b]	Secondary Work Activity	38.9	39.2	39.5	39.6	37.4	36.7	38.2	38.4	48.5	49.4	49.3	51.1
		(58.6)	(58.9)	(58.9)	(59.3)	(56.0)	(55.9)	(58.4)	(58.8)	(74.4)	(77.7)	(76.4)	(76.7)
PDEMPFLD[b]	Field of Employment	48.2	47.9	47.0	47.3	45.3	44.0	45.4	45.7	58.3	59.1	59.0	60.0
		(72.7)	(72.1)	(70.2)	(70.8)	(68.0)	(67.0)	(69.4)	(70.1)	(89.6)	(93.0)	(91.5)	(91.9)
PDCONSID	Postdoctoral Appointment Consideration	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PDDECISN	Decision Against Postdoc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
PDUSFOR	Postdoctoral Location US or Foreign	NA	NA	NA	NA	NA	NA	NA	NA	NA	90.8	90.7	90.1
PDAFFIL	Postdoctoral Affiliation	68.6	68.3	80.0	89.6	94.4	93.8	94.6	94.1	92.6	NA	NA	NA

NOTE: NA = not available

[a] The percentages on the first line are based on the total doctoral cohort for a fiscal year. The percentages on the second line (enclosed in parentheses) are based on the number of recipients who reported plans for postdoctoral study.

[b] The percentages on the first line are based on the total doctoral cohort for a fiscal year. The percentages on the second line (enclosed in parentheses) are based on the number of recipients who reported plans for postdoctoral employment.

III. Derived Variables

The following derived variables deserve further explanation.

Postdoctoral Plans to Stay in the United States

Starting in 1997, the planned postdoctoral location of doctorate recipients was coded in a new variable called PDLOC using FIPS codes for U.S. states and territories and countries. Values of PDLOC less than 100 indicate a postdoctoral location in the United States.

Also beginning in 1997, a dichotomous variable, PDUSFOR, was created to index whether the planned postdoctoral location reported by the respondent was in the United States or in a foreign location.

For years prior to 1997, this variable is based on PDAFFIL. The first character of PDAFFIL flags whether the respondent's planned postdoctoral location is in the United States; a numeric character in this position indicates a United States location. Non-numeric values in the first position of PDAFFIL (except "R") indicate non-U.S. locations. A value of "R" for PDAFFIL signifies the respondent's refusal to provide information.

For the interested user, the following SAS code produces "USPLAN" as an index of plans to stay in the United States following the doctorate using PDAFFIL1 (a variable created using the first character of PDAFFIL).

```
USPLAN=2; /* Outside the U.S. */

if PDAFFIL1 in ("0","1","2","3","4","5","6","7","8","9")
   then USPLAN=1; /* U.S. */

if PDAFFIL1 eq "R" then USPLAN=.;

if PDAFFIL1 eq " " then USPLAN=.;
```

Firm Postdoctoral Plans

Postdoctoral plans are coded using the values of PDOCSTAT, which indicate that the doctorate recipient's postdoctoral plans were definite at the time the survey was completed. That is, codes 0, 1, or A on PDOCSTAT indicate that the respondent had definite postdoctoral plans, whereas codes 2, 3, and 4 indicate that the respondent was still seeking to determine postdoctoral placement.

The following is the SAS code used to derive FIRMPLAN from PDOCSTAT :

```
if PDOCSTAT in ("0","1","A") then FIRMPLAN=1;   /* Definite */

if PDOCSTAT in ("2","3","4") FIRMPLAN=2;   /* Seeking */

if PDOCSTAT eq " " then FIRMPLAN=.;
```

Firm Plans to Stay in the United States

This variable is derived from USPLAN and FIRMPLAN. A respondent is coded as having firm plans to stay in the United States if the reported postdoctoral location was in the United States and the reported postdoctoral plans were coded "definite."

The following is the SAS code that creates the variable FIRMUS from USPLAN and FIRMPLAN as described above.

```
FIRMUS=2;
if (USPLAN eq 1 and FIRMPLAN eq 1) then FIRMUS=1;
if USPLAN eq . or FIRMPLAN eq . then FIRMUS=.;
```

Race/Ethnicity

Adjustments to numbers: Readers should keep in mind that fluctuations in numbers for a racial/ethnic group reflect to some degree any upward or downward change in both overall survey response and response to the racial/ethnic item. Since 1990 response to race/ethnicity has shown great improvement — a result of new procedures for following up missing information. Race/ethnicity was not followed up prior to 1990.

All follow-up responses received before survey closure are included in the data presented in the summary report for that survey. Responses arriving after closure are included in the next year's report. The extension of survey closure dates in the past four years has allowed most follow-up responses to be received in time to be included in the summary reports for those surveys. Postsurvey adjustments were greatest for 1990 and 1991 data, much less for 1992, and minimal for 1993. In 1994 response to the racial/ethnic item reached 97 percent by survey closure — the highest rate ever. Any postsurvey adjustments for 1998 data will be included in next year's report, but they are expected to be very slight because of the extended closure. Updated numbers for all recent years appear in Appendix Table B-2 in this report.

History of the racial/ethnic question: Although this item was first introduced to the Survey of Earned Doctorates in 1973, over 25 percent of recipients in 1973 and about 13 percent in 1974 either completed earlier questionnaires or provided unusable responses. Since 1975 the racial/ethnic data have been more reliable, with response rates ranging from 90.1 to 97.1 percent (the latter in 1994). The information on race/ethnicity presented in this report is limited to the period of 1977-98.

The racial/ethnic question has undergone several revisions over the years. In 1977 it was modified to correspond to a standard question format recommended by the Federal Interagency Committee on Education and adopted by the Office of Management and Budget (OMB) for use in Federally sponsored surveys; and explanation of the effect of these changes is detailed on page 13 of *Summary Report 1977*. (Note: Changes in the OMB guidelines prompted the reclassification of persons having origins in the Indian subcontinent from the white category to the Asian category.) In 1980 the question was further revised in two ways: (1) the Hispanic category was subdivided into Puerto Rican, Mexican American, and other Hispanic and (2) respondents were asked to check only one racial category. (Before 1980 doctorate recipients could check more than one category to indicate their race.) The item was modified again in 1982 to separate the questions on race and ethnicity. Since then, respondents have been asked to first check one of the four racial group categories (American Indian, Asian, black, or white) and then indicate whether or not they are Hispanic. In this report, doctorate recipients who reported Hispanic heritage are classified as Hispanic regardless of their racial designations; the remaining doctorate recipients are then counted in the respective racial groups. (Note: Doctorate recipients who checked the category "American Indian or Alaskan Native" are identified as "American Indian" in this report.)

Time to Doctorate

Total time to degree (TTD): TTD measures the total elapsed time between the baccalaureate and the doctorate (including time not enrolled in school). TTD can be computed only for individuals whose baccalaureate year is known. Baccalaureate year is often obtained from commencement programs or doctorate institutions when not reported by the recipient. *Months are now included in the computation (see note below).*

Registered time to degree (RTD): RTD gauges the time in attendance at colleges and universities between receipt of the baccalaureate and the doctorate. Enrollment may include years of attendance not related to a recipient's doctoral program. RTD can only be computed for individuals who provided all years of college attendance after the baccalaureate. *Months are now included in the computation (see note below).*

Note about medians: The method of computing medians has been revised. Beginning with *Summary Report 1994*, months (of birth, baccalaureate, and doctorate) are included in the calculations whenever available; if months are missing, only years are used in the calculations. (However, medians are not computed for years prior to 1969 because doctorate month is unavailable for all doctorate recipients.) Medians presented in previous summary reports were based only on years. Some medians would be the same regardless of the method of computation, but the new method generally computes slightly different results. While differences are small (usually one- or two-tenths of a year), readers should consider these differences when comparing medians presented in the report with those in earlier reports.

IV. Changes to the 1998 SED

Marital Status

Beginning in the 1998 SED, response categories for the questionnaire item on marital status have been expanded from three to five choices. The table below illustrates this change.

Old version (SED 1997 and earlier)		New version (SED 1998 and later)	
Code	**Questionnaire selection**	**Code**	**Questionnaire selection**
0	Single, never married	1	Married
1	Married	2	Living in a marriage-like relationship
2	Separated, divorced, widowed	3	Widowed
		4	Separated/divorced
		5	Never married

Questionnaire response "Married" maps directly from the old version to the new version. This choice presents no problems of comparability across years. However, the category "2-Separated, divorced, widowed" from the previous questionnaire has been separated into two categories in the new version, "3-Widowed" and "4-Separated/divorced." Also, the category "0-Single, never married" has been recoded as "5-Never married."

Source of Funding Variables (Questions A11, A12)

Before the 1998 SED, the source of funding variables, SRCE(A-M), SRCEPRIM, and SRCESEC, took 35 possible numeric values, indicating specific funding sources that supported the respondent's graduate education. A number of these numeric codes keyed to specific Federal programs (e.g., Patricia Roberts Harris scholarships, NIH traineeships, etc.). The new code frame reduces the respondent's available choices to 13 and presents options as broad categories of funding sources (e.g., "Federal government"), rather than specific programs (e.g., "NIH traineeship").

The number of closed-ended answer choices offered at Question A11 corresponds with the total number of sources of financial support variables recorded on the DRF. To make the analysis of these data easier, SRCE(A-M) were converted to Yes/No/Don't Know questions, replacing numerical coding of specific college funding programs. Data users can perform straightforward frequencies on each source of funding variable, rather than running frequencies on 13 variables and summing the results to get the number of cases receiving funding from each of 35 sources.

To preserve consistency in coding over the two form types for 1998 SED, the coding system shown in the table below should be used to map the older code frame into the new code frame.

Old version (SED 1997 and earlier)		New version (SED 1998 and later)	
Code	**Questionnaire selection**	**Code**	**Questionnaire selection**
80	Guaranteed Student Loan (Stafford Loan)	a.	Loans (from any source)
81	Perkins Loan (formerly NDSL)		
89	Other loan - specify		
91	Foreign (non-U.S.) Government	b.	Foreign (non-U.S.) support
12	University fellowship	c.	Fellowship, scholarship
29	Other HHS		
33	NSF Fellowship		
40	Patricia Roberts-Harris Fellowship		
44	Title VI Foreign Language		
49	Other Dept. of Education		
53	USDA Fellowship		
55	NEH		
60	Veterans Administration		
61	Fulbright Fellowship		
69	Other/Specify (Other Federal Sup.)		
70	Ford Foundation		
71	Rockefeller Foundation		
73	Mellon Foundation		
78	Other Fellowship		
		d.	Dissertation grant
10	Teaching Assistantship	e.	Teaching assistantship
11	Research Assistantship	f.	Research assistantship
22	NIH		
32	NSF		
52	USDA		
62	Other Federal Research Assistantship		
21	NIH Traineeship/Fellowship	g.	Traineeship
		h.	Internship or residency

Old version (SED 1997 and earlier)		New version (SED 1998 and later)	
Code	**Questionnaire selection**	**Code**	**Questionnaire selection**
		i.	Personal savings
14 01 19	College Work Study Own/Family Resources Other/Specify (University-Related)	j.	Other personal earnings during graduate school
02 03	Spouse's Earnings Family Contributions	k.	Spouse's, significant other's, or family earnings or savings
90	Business/Employer	l.	Employer reimbursement/assistance
92 99	State Government Other Specify	m.	Other specify

In addition, the tabulations in this report further collapse the 13 new categories into 7 as follows.

1998 Summary Report Table Category	Raw Variables
1. Teaching Assistantships	SRCE-E
2. Research Assistantships/Traineeships/Internships	SRCE-F,G,H
3. Fellowships/Dissertation Grants	SRCE-C,D
4. Own Resources (loans + spouse + savings + work)	SRCE-A,I,J,K
5. Foreign Goverment	SRCE-B
6. Employer	SRCE-L
7. Other	SRCE-M

Because the new source of support variable code frame groups these sources somewhat differently than in the past, users should approach generalizations on trends in financing doctoral education with caution. For example, the table below breaks down the categories further. It pinpoints the source of the decline in the "Own Resources" category: the double-digit drop in the "Other personal earnings in graduate school" category. At the same time, it shows that the increase in doctorate recipients indicating they received fellowships accounts for almost all of the increased proportion of doctorate recipients in the category "Fellowships/Dissertation Grants."

While the earlier years' data suggests a slight increase in the proportion of doctorate recipients indicating "Fellowships/Dissertation Grants" as their primary source of support, the one-year increase of more than 5 percent from 1994-97 to 1998 raises questions. Again, data from another National Science Foundation survey, The Survey of Graduate Students and Postdoctorates in Science and Engineering, suggest that proportion of graduate students relying on fellowship aid has remained relatively flat since the early 1980s.

Distribution of Responses to Source of Support Variable, 1990-1998
(SRCEPRIM used in these calculations)

	1990-1993		1994-1997		1998	
Source of Support	**No.**	**Pct.**	**No.**	**Pct.**	**No.**	**Pct.**
Loans (from any source)	2,912	2.6	4,150	3.1	2,324	6.2
Foreign (non-U.S.) support	3,020	2.7	3,180	2.4	952	2.5
Fellowship, scholarship	9,606	8.7	13,905	10.3	5,953	15.8
Dissertation grant	--	--	--	--	183	0.5
Teaching assistantship	19,492	17.7	23,694	17.5	6,707	17.8
Research assistantship	28,539	26.0	36,701	27.1	9,369	24.9
Traineeship	2,487	2.3	2,524	1.9	562	1.5
Internship or residency	--	--	--	--	55	0.1
Personal savings	--	--	--	--	1241	3.3
Other personal earnings during graduate school	28,084	25.6	30,618	22.6	4,678	12.4
Spouse's, significant other's, or family earnings or savings	12,786	11.6	14,912	11.0	3,905	10.4
Employer reimbursement/assistance	2,072	1.9	2,995	2.2	1,184	3.1
Other	912	0.8	2,624	1.9	586	1.6

Source: NSF/NIH/NEH/USED/USDA, Survey of Earned Doctorates

APPENDIX D

Survey of Earned Doctorates Questionnaire
Academic Year 1998

Please print your name in full:

First Name **Middle Name** **Last Name** **Suffix (e.g., Jr.)**

Cross reference: Birth name or former name legally changed

Survey of Earned Doctorates

July 1, 1997 to June 30, 1998

Conducted by
The National Opinion Research Center at the University of Chicago
for
The National Science Foundation
The National Institutes of Health
The National Endowment for the Humanities
The U.S. Department of Education
The U.S. Department of Agriculture

This information is solicited under the authority of the National Science Foundation Act of 1950, as amended, ALL INFORMATION YOU PROVIDE WILL BE TREATED AS CONFIDENTIAL and used only for research or statistical purposes by your doctoral institution, the survey sponsors, their contractors, and collaborating researchers for the purpose of anlayzing data, preparing scientific reports and articles, and selecting samples for a limited number of carefully defined follow-up studies. Your social security number is also solicited under the NSF Act of 1950, as amended. Providing it is also voluntary. It is used for survey quality control, program evaluation, and for matching with other databases. Any information publicly released (such as statistical summaries) will be in a form that does not personally identify you. Your response is voluntary and failure to provide some or all of the requested information will not in any way adversely affect you.

The time needed to complete this form varies according to individual circumstances, but the average time is estimated to be 20 minutes. If you have comments regarding this time estimate, you may write to the National Science Foundation, 4201 Wilson Blvd., Arlington, VA 22230, Attention: NSF Reports Clearance Officer.

NATIONAL SCIENCE FOUNDATION
4201 WILSON BOULEVARD
ARLINGTON, VIRGINIA 22230

To the Doctorate Recipient:

Congratulations on earning a doctoral degree! This is an important accomplishment for you. Your accomplishment is also significant for both this nation and others, as the new knowledge generated by research doctorates enhances the quality of life in this country and throughout the world. Because of the importance of persons earning research doctorates, several Federal agencies—listed on the cover—sponsor this Survey of Earned Doctorates.

The basic purpose of this survey is to gather objective data about doctoral graduates. These data are important in improving graduate education both at your home institution and beyond. Often, decisions made by governmental and private agencies to develop new programs, or to support present ones, are based in part on the data developed from this survey.

This form is distributed by the Graduate Deans and is filled out by all persons who have completed the requirements for a research doctoral degree. Please print your name on the cover if you have not already done so, and then complete this questionnaire and return it to the Graduate Dean. The confidentiality of the information you provide is carefully protected.

On behalf of the sponsoring Federal agencies, I thank you for your participation in this survey.

Best wishes,

Jeanne E. Griffith
Director, Division of Science Resources Studies

INSTRUCTIONS

Thank you for taking the time to complete this important questionnaire. Directions are provided for each question. Because not all questions will apply to everyone, you may be asked to skip certain questions.

- If you have not already done so, please print your name on the front cover.
- You may use either a pen or pencil.
- When answering questions that require marking a box, please use an "X."
- If you need to change an answer, please make sure that your old answer is either completely erased or clearly crossed out.
- On pages 8 and 9 (inside the back cover) is a Specialties List for classifying your field(s) of specialization in Questions A2, A10, B5, and B9.

Thanks again for your help; we really appreciate it.

PART A - Education

A1. What is the title of your dissertation?

☐ *Please mark (X) this box if the title below refers to a performance, project report or a musical or literary composition required instead of a dissertation*

Title ____________________

A2. Using the Specialties List (pages 8-9), please write the name and number of the field of your dissertation research.

Name of field ____________________

Number of field ☐☐☐

A3. After receiving your first bachelor's degree (or equivalent), and including the period spent on your dissertation, how many years were you a full-time student?

☐☐ Years (whole numbers)

A4. Please check the category that most fully describes your employment or study status during the year immediately before the award of the doctorate.

Mark (X) one

0 ☐ Full-time employed → ***GO to A5***
1 ☐ Held fellowship
2 ☐ Held assistantship
3 ☐ Part-time employed
4 ☐ Not employed
5 ☐ Other - *Specify*

____

SKIP to A6

A5. ***(IF FULL-TIME EMPLOYED)*** **What type of position did you hold?**

Mark (X) one

6 ■ College or university, faculty
7 ■ College or university, non-faculty
8 ■ Elementary or secondary school, teaching
9 ■ Elementary or secondary school, non-teaching
11 ■ Industry or business
12 ■ Other - *Specify*

____

A6. In what state or country was the high school/secondary school that you last attended?

State (if U.S.)

____

OR

Country (if not U.S.)

____

A7. When did you graduate from high school/ secondary school?

Month ☐☐ Year **19** ☐☐

A8. Please name the department (or interdisciplinary committee, center, institute, etc.) of the university that supervised your doctoral program.

☐ *Mark (X) box if none*

____

____
Department/Committee/Center/Institute/Program

A9. Please name the school or college within the university that supervised your doctoral program.

☐ *Mark (X) box if not applicable*

____

____
School or College within University

A10. Please list below, chronologically, all colleges (including 2-year) and graduate institutions you have attended and each degree earned (if any). Be sure to give the years attended for ALL institutions attended. Include your doctoral institution(s) and degree at the end.

☐ Mark (X) box if bachelor's degree (or equivalent) was never received.

☐ Mark (X) box if master's degree (or equivalent) was never received.

EXAMPLE

Institution and Location	Years Attended		Field of Study Use Specialties List, pages 8-9		Degree (if any)	Granted	
	From	To	Field Name	Number	Title	Mo.	Yr.
Institution: Indian Institute of Technology Branch or City: Madras State or Province: Country (if not U.S.): India	83	85	Mechanical Engineering	345	—	—	—
Institution: University of California Branch or City: Berkeley State or Province: CA Country (if not U.S.):	85	87	Mechanical Engineering	345	B.S.	6	87

Institution and Location	Years Attended		Field of Study Use Specialties List, pages 8-9		Degree (if any)	Granted	
	From	To	Field Name	Number	Title	Mo.	Yr.
Institution Branch or City / State or Province / Country (if not U.S.)							
Institution Branch or City / State or Province / Country (if not U.S.)							
Institution Branch or City / State or Province / Country (if not U.S.)							
Institution Branch or City / State or Province / Country (if not U.S.)							
Institution Branch or City / State or Province / Country (if not U.S.)							
Institution Branch or City / State or Province / Country (if not U.S.)							

If you have attended more than six institutions of higher education, please continue this list on the back cover. Be sure to include your doctoral institution.

A11. Which of the following were sources of money to cover living and/or educational expenses during your doctoral programs?

	Mark (X) Yes or No for each	Yes	No	Don't Know
a.	Loans (from any source)	1 ☐	2 ☐	☐
b.	Foreign (non-U.S.) support	1 ☐	2 ☐	☐
c.	Fellowship, scholarship	1 ☐	2 ☐	☐
d.	Dissertation grant	1 ☐	2 ☐	☐
e.	Teaching assistantship	1 ☐	2 ☐	☐
f.	Research assistantship	1 ☐	2 ☐	☐
g.	Traineeship	1 ☐	2 ☐	☐
h.	Internship or residency	1 ☐	2 ☐	☐
i.	Personal savings	1 ☐	2 ☐	☐
j.	Other personal earnings during graduate school	1 ☐	2 ☐	☐
k.	Spouse's, significant other's, or family earnings or savings	1 ☐	2 ☐	☐
l.	Employer reimbursement/assistance	1 ☐	2 ☐	☐
m.	Other - *Specify* ↓	1 ☐	2 ☐	☐

____

A12. Which TWO sources listed in A11 gave you the most support?

Enter letters of primary and secondary sources

1. _____ Primary source of support

☐ *Mark (X) if no primary source*

2. _____ Secondary source of support

☐ *Mark (X) if no secondary source*

A13. When you receive your doctoral degree, how much money will you owe that is directly related to your undergraduate and/or graduate education (tuition and fees, living expenses and supplies, transportation to and from school)?

0 ☐ None
1 ☐ $5,000 or less
2 ☐ $5,001 - $10,000
3 ☐ $10,001 - $15,000
4 ☐ $15,001 - $20,000
5 ☐ $20,001 - $25,000
6 ☐ $25,001 - $30,000
7 ☐ $30,001 or more

PART B - Postgraduation Plans

B1. How definite are your immediate postgraduate plans?

Mark (X) one

0 ☐ Am returning to, or continuing in, predoctoral employment
1 ☐ Have signed contract or made definite commitment for other work or study
2 ☐ Am negotiating with one or more specific organizations
→ ***GO to B2, page 5***

3 ☐ Am seeking position but have no specific prospects
4 ☐ Other - *Specify* ↓
____
SKIP to B3, page 5

B2. Please name the organization and geographic location where you will work or study.

____
Name

____
City State (if U.S.) Country (if not U.S.)

SKIP to B4

B3. In what state or country do you intend to live after graduation?

Mark (X) one

0 ☐ in U.S. → State ____________

1 ☐ not in U.S. → Country ____________

B4. What best describes your immediate postgraduate plans?

Mark (X) one

0 ☐ Postdoctoral fellowship
1 ☐ Postdoctoral research associateship
2 ☐ Traineeship
3 ☐ Other study - *Specify*

____

4 ☐ Employment (other than 0,1,2,3)
5 ☐ Military service
6 ☐ Other - *Specify*

____

SKIP to B7

B5. Please use the Specialties List (pages 8-9) to enter the name and number of your postdoctoral field.

Name of field ____________

Number of field ☐☐☐

B6. What will be the main source of financial support for your postdoctoral study/research?

Mark (X) one

0 ☐ U.S. Government
1 ☐ College or university
2 ☐ Private foundation
3 ☐ Nonprofit, other than private foundation
4 ☐ Other - *Specify*

____

6 ☐ Unknown

SKIP to C1, page 6

B7. For what type of employer will you be working?

Mark (X) one

EDUCATION
a ☐ U.S. 4-year college or university other than medical school
b ☐ U.S. medical school
c ☐ U.S. junior or community college
d ☐ Elementary or secondary school
e ☐ Foreign institution

GOVERNMENT
f ☐ Foreign government
g ☐ U.S. federal government
h ☐ U.S. state government
i ☐ U.S. local government

PRIVATE SECTOR
j ☐ Nonprofit organization
k ☐ Industry or business
l ☐ Self-employed

OTHER
m ☐ Other - *Specify*

____

B8. From the list below, please indicate what your primary and secondary work activities will be by entering the numbers of your selections in the appropriate boxes:

Enter numbers from below:

a. ____ Primary Activity

b. ____ Secondary Activity

0 Research and development
1 Teaching
2 Administration
3 Professional services to individuals
5 Other - *Specify*

____

B9. Please use the Specialties List (pages 8-9) to enter the name and number of the field in which you will be working.

Name of field ____________

Number of field ☐☐☐

PART C - Background Information

C1. Are you -

1 ☐ Male
2 ☐ Female

C2. What is your marital status?

Mark (X) one

1 ☐ Married
2 ☐ Living in a marriage - like relationship
3 ☐ Widowed
4 ☐ Separated/divorced
5 ☐ Never married

C3. Not including yourself, how many dependents do you have - that is, how many others receive at least one half of their support from you?

____ Number

C4. What is the highest educational attainment of your mother and father?

Mark (X) one for each parent

	a. Mother	b. Father
Less than high school/ secondary school	1 ☐	1 ☐
High-school/secondary-school graduate	2 ☐	2 ☐
Some college	3 ☐	3 ☐
Bachelor's degree	4 ☐	4 ☐
Master's degree	5 ☐	5 ☐
Professional degree	6 ☐	6 ☐
Doctoral degree	7 ☐	7 ☐

C5. What is your place of birth?

State (if U.S.)

____

OR

Country (if not U.S.)

____

C6. What is your date of birth?

Month ____ Day ____ Year **19** ____

C7. What is your citizenship status?

Mark (X) one

U.S. Citizen:

0 ☐ Native Born → ***SKIP to C9***
1 ☐ Naturalized → ***SKIP to C9***

Non-U.S. Citizen:

2 ☐ With a Permanent U.S. Resident Visa
3 ☐ With a Temporary U.S. Resident Visa

C8. *(IF A NON-U.S. CITIZEN)* **Of which country are you a citizen?**

____

(Specify country of present citizenship)

C9. Are you a person with a disability?

1 ☐ Yes
2 ☐ No → ***SKIP to C11***

C10. *(IF YES)* **Which of the following categories describes your disability?**

1 ☐ Visual
2 ☐ Orthopedic (mobility)
3 ☐ Auditory (hearing)
4 ☐ Vocal
5 ☐ Other - *Specify*

____

C11. Are you Hispanic?

0 ☐ Yes → ***GO to C12, page 7***
1 ☐ No → ***SKIP to C13, page 7***

C12. *(IF YES TO C11)* **Which of the following describes your Hispanic origin or descent?**

0 ☐ Mexican American
1 ☐ Puerto Rican
2 ☐ Other Hispanic - *Specify*

____

____

C13. What is your racial background?

Mark (X) one

0 ☐ American Indian or Alaskan Native
1 ☐ Asian or Pacific Islander
2 ☐ Black
3 ☐ White

C14. Please fill in your U.S. Social Security Number.

__|__|__ – __|__ – __|__|__|__

C15. In case we need to clarify some of the information you have provided, please list a telephone number and e-mail address (if available) where you can be reached.

Daytime telephone ________________

Evening telephone ________________

E-mail address ________________

____

C16. Because we are interested in how education relates to employment over time, we may be recontacting you. To help us, please provide the name, address, and telephone number of one person who is likely to know where you can be reached. As with all information provided in this questionnaire, complete confidentiality will be provided.

Care of (if applicable)

Number and Street

City/Town — State or Province — Zip Code or Postal Code

Country (if outside U.S.) — Phone Number (including area or country code)

C17. Please sign and date.

Signature — Date

☐ **Mark (X) box if you would like a summary of the results of this survey (available as funding permits).**

Results of the Survey of Earned Doctorates can be found on the National Science Foundation's World Wide Web page at http://www.nsf.gov/sbe/srs/stats.htm

Please use the back cover to make any additional comments you may have about this survey.

Thank you for completing the questionnaire. Please return it to the GRADUATE DEAN for forwarding to Survey of Earned Doctorates, National Opinion Research Center at the University of Chicago, 1525 East 55th Street, Chicago, IL 60615. Should you need to call us, our toll free number is 1-800-248-8649.

SPECIALTIES LIST

INSTRUCTIONS: The following field listing is to be used in responding to items A2, A10, B5, and B9. If you choose a field marked with an asterisk (*), please write in your field of specialization in the space provided in those items.

AGRICULTURAL SCIENCES

000 Agricultural Economics
002 Agricultural Business & Mgmt.
005 Animal Breeding & Genetics
010 Animal Nutrition
012 Dairy Science
014 Poultry Science
055 Fisheries Sci. & Management
019 Animal Sciences, Other*
020 Agronomy & Crop Science
025 Plant Breeding & Genetics
030 Plant Pathology (See also 120)
039 Plant Sciences, Other*
043 Food Engineering
044 Food Sciences, Other*
046 Soil Chemistry/Microbiology
049 Soil Sciences, Other*
050 Horticulture Science
066 Forest Biology
068 Forest Engineering
070 Forest Management
072 Wood Sci. & Pulp/Paper Tech.
074 Conserv./Renewable Natural Res.
079 Forestry & Related Sci., Other*
080 Wildlife/Range Management
098 Agricultural Sci., General
099 Agricultural Sci., Other*

BIOLOGICAL SCIENCES

100 Biochemistry
103 Biomedical Sciences
105 Biophysics
107 Biotechnology Research
110 Bacteriology
115 Plant Genetics
120 Plant Pathology (See also 030)
125 Plant Physiology
129 Botany, Other*
130 Anatomy
133 Biometrics & Biostatistics
136 Cell Biology (See also 154)
139 Ecology
142 Developmental Bio./Embryology
145 Endocrinology
148 Entomology
151 Biological Immunology
154 Molecular Biology
157 Microbiology
160 Neuroscience
163 Nutritional Sciences
166 Parasitology
169 Toxicology
170 Genetics, Human & Animal
175 Pathology, Human & Animal (See also 120)
180 Pharmacology, Human & Animal
185 Physiology, Human & Animal
189 Zoology, Other*
198 Biological Sciences, General
199 Biological Sciences, Other*

HEALTH SCIENCES

200 Speech-Lang. Pathology & Audiology
210 Environmental Health
212 Health Systems/Service Admin.
215 Public Health
220 Epidemiology (See also 133)
222 Exercise Physiology/ Sci., Kinesiology
230 Nursing
240 Pharmacy
245 Rehabilitation/Therapeutic Services
250 Veterinary Medicine
298 Health Sciences, General
299 Health Sciences, Other*

ENGINEERING

300 Aerospace, Aeronaut. & Astronaut.
303 Agricultural
306 Bioengineering & Biomedical
309 Ceramic Sciences
312 Chemical
315 Civil
318 Communications
321 Computer
324 Electrical & Electronics
327 Engineering Mechanics
330 Engineering Physics
333 Engineering Science
336 Environmental Health Engineering
339 Industrial & Manufacturing
342 Materials Science
345 Mechanical
348 Metallurgical
351 Mining & Mineral
357 Nuclear
360 Ocean
363 Operations Research (See also 465, 930)
366 Petroleum
369 Polymer & Plastics
372 Systems
398 Engineering, General
399 Engineering, Other*

COMPUTER AND INFORMATION SCIENCES

400 Computer Science
410 Information Science & Systems*

MATHEMATICS

420 Applied Mathematics
425 Algebra
430 Analysis & Functional Analysis
435 Geometry
440 Logic (See also 785)
445 Number Theory
450 Mathematical Statistics
455 Topology
460 Computing Theory & Practice
465 Operations Research (See also 363, 930)
498 Mathematics, General
499 Mathematics, Other*

PHYSICAL SCIENCES

Astronomy

500 Astronomy
505 Astrophysics

Atmospheric Sci. and Meteorology

510 Atmospheric Physics & Chemistry
512 Atmospheric Dynamics
514 Meteorology
518 Atmos. Sci./Meteorol., General
519 Atmos. Sci./Meteorol., Other*

Chemistry

520 Analytical
522 Inorganic
524 Nuclear
526 Organic
528 Medicinal/Pharmaceutical
530 Physical
532 Polymer
534 Theoretical
538 Chemistry, General
539 Chemistry, Other* (See 100 Biochemistry)

Geological & Related Sciences

540 Geology
542 Geochemistry
544 Geophysics & Seismology
546 Paleontology
548 Mineralogy & Petrology
550 Stratigraphy & Sedimentation
552 Geomorphology & Glacial Geology
558 Geolog. & Related Sci., General
559 Geolog. & Related Sci., Other*

Physics

560 Acoustics
561 Chemical & Atomic/Molecular
564 Elementary Particle
566 Fluids
568 Nuclear
569 Optics
570 Plasma & High-Temperature
572 Polymer

SPECIALTIES LIST (continued)

574 Solid State & Low-Temperature
578 Physics, General
579 Physics, Other*

Miscellaneous Physical Sciences

580 Environmental Science
585 Hydrology & Water Resources
590 Oceanography
595 Marine Sciences
599 Misc. Physical Sciences, Other*

PSYCHOLOGY

600 Clinical
603 Cognitive & Psycholinguistics
606 Comparative
609 Counseling
612 Developmental & Child
613 Human/Indiv. & Family Devlpmt.
615 Experimental
618 Educational (See also 822)
620 Family & Marriage Counseling
621 Indust. & Organiz. (See also 935)
624 Personality
627 Physiological/Psychobiology
630 Psychometrics
633 Quantitative
636 School (See also 825)
639 Social
648 Psychology, General
649 Psychology, Other*

SOCIAL SCIENCES

650 Anthropology
652 Area Studies
658 Criminology
662 Demography/Population Studies
666 Economics
668 Econometrics
670 Geography
674 International Relations/Affairs
678 Political Sci. & Government
682 Public Policy Analysis
686 Sociology
690 Statistics (See also 450)
694 Urban Affairs/Studies
698 Social Sciences, General
699 Social Sciences, Other*

HUMANITIES

History

700 History, American
703 History, Asian
705 History, European
710 History/Philosophy of Sci. & Tech.
718 History, General
719 History, Other*

Letters

720 Classics
723 Comparative Literature
729 Linguistics
732 Literature, American
733 Literature, English
734 English Language
736 Speech & Rhetorical Studies
738 Letters, General
739 Letters, Other*

Foreign Languages and Literature

740 French
743 German
746 Italian
749 Spanish
752 Russian
755 Slavic (other than Russian)
758 Chinese
762 Japanese
765 Hebrew
768 Arabic
769 Other Languages & Literature*

Other Humanities

770 American Studies
773 Archeology
776 Art History/Criticism/Conserv.
780 Music
785 Philosophy (See also 440)
790 Religion (See also 984)
795 Drama/Theater Arts
798 Humanities, General
799 Humanities, Other*

EDUCATION

800 Curriculum & Instruction
805 Educational Admin. & Supervision
807 Educational Leadership
810 Educ./Instruct. Media Design
815 Educ. Stat./Research Methods
820 Educ. Assess./Test./Meas.
822 Educ. Psychology (See also 618)
825 School Psychology (See also 636)
830 Social/Phil. Found. of Education
835 Special Education
840 Couns. Educ./Couns. & Guid. Serv.
845 Higher Education/Eval. & Research

Teacher Education

850 Pre-elementary/Early Childhood
852 Elementary
856 Secondary
858 Adult & Continuing

Teaching Fields

860 Agricultural Education
861 Art Education
862 Business Education
864 English Education
866 Foreign Languages Education
868 Health Education
870 Home Economics Education
872 Tech. & Indust. Arts Education
874 Mathematics Education
876 Music Education
878 Nursing Education
880 Physical Education & Coaching
882 Reading Education
884 Science Education
885 Social Science Education
887 Technical Education
888 Trade & Industrial Education
889 Teacher Educ., Specific Acad. & Voc. Prog., Other*

Other Education

898 Education, General
899 Education, Other*

PROFESSIONAL FIELDS

Business Management and Administrative Services

900 Accounting
905 Banking/Financial Support Serv.
910 Business Admin. & Management
915 Business/Managerial Economics
916 International Business
917 Mgmt. Info. Sys./Bus. Data Proc.
920 Marketing Management & Research
930 Operations Research (See also 363, 465)
935 Organiz. Behavior (See also 621)
938 Bus. Mgmt./Admin. Serv., Gen.
939 Bus. Mgmt./Admin. Serv., Other*

Communications

940 Communications Research
947 Mass Communications
957 Communication Theory
958 Communications, General
959 Communications, Other* (See also 736)

Other Professional Fields

960 Architec. Environ. Design
964 Home Economics
968 Law
972 Library Science
974 Parks/Rec./Leisure/Fitness
976 Public Administration
980 Social Work
984 Theol./Religious Education (See also 790)
988 Professional Fields, General
989 Professional Fields, Other*

OTHER FIELDS*

999 Other

Comments About This Survey

Please return this questionnaire to your GRADUATE DEAN for forwarding to Survey of Earned Doctorates, National Opinion Research Center at the University of Chicago, 1525 East 55th Street, Chicago, IL 60615.
Should you need to call us, our toll free number is 1-800-248-8649.

OFFICE USE ONLY

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APPENDIX E

Field Classification and Research Degree Titles

APPENDIX E: Field Classification and Research Degree Titles

The appendix tables present data according to the following field classifications. Appendix Tables A-1 and A-2 and Appendix Table B-1 display all subfields that are on the survey Specialties List. Appendix Tables A-4, A-5, and A-6 show data by seven broad fields only. Appendix Tables A-3 and A-7 include the additional field groupings indicated below.

SCIENCES

Physical Sciences (400-599)
- Physics and Astronomy (500-505, 560-579)
- Chemistry (520-539)
- Earth, Atmospheric, and Marine Sciences (510-519, 540-559, 590-599)
- Mathematics (420-499)
- Computer Sciences (400410)

} Combined in Table A-7

Engineering (300-399)

Life Sciences (000-299)
- Biological Sciences (100-199)
  - Biochemistry (100)
  - Other Biological Sciences (103-199)
- Health Sciences (200-299)
- Agricultural Sciences (000-099)

Social Sciences (600-699)
- Psychology (600-649)
- Economics and Econometrics (666, 668)
- Anthropology and Sociology (650, 686)
- Political Science and International Relations (674,678)
- Other Social Sciences (652-662, 670, 672, 682, 690-699)

} Combined in Table A-7

NONSCIENCES

Humanities (700-799)
- History (700-719)
- English and American Language and Literature (732-734)
- Foreign Languages and Literature (740-769)
- Other Humanities (720-729, 736-739, 770-799)

} Combined in Table A-7

Education (800-899)

Professional and Other Fields (900-999
- Business and Management (900-939)
- Other Professional Fields (940-989)
- Other Fields (999)

NOTE: Doctorate recipients indicate their fields of specialty. Their choices may differ from departmental names.

TITLES OF RESEARCH DEGREES INCLUDED IN THE SURVEY OF EARNED DOCTORATES

DA/DAT	**Doctor of Arts/Arts in Teaching**	**DMM**	**Doctor of Music Ministry**
DArch	**Doctor of Architecture**	**DMSc**	**Doctor of Medical Science**
DAS	**Doctor of Applied Science**	**DNSc**	**Doctor of Nursing Science**
DBA	**Doctor of Business Administration**	**DPA**	**Doctor of Public Administration**
DChem	**Doctor of Chemistry**	**DPE**	**Doctor of Physical Education**
DCJ	**Doctor of Criminal Justice**	**DPH**	**Doctor of Public Health**
DCL	**Doctor of Comparative Law/Civil Law**	**DPS**	**Doctor of Professional Studies**
DCrim	**Doctor of Criminology**	**DrDES**	**Doctor of Design**
DED	**Doctor of Environmental Design**	**DRE**	**Doctor of Religious Education**
DEng	**Doctor of Engineering**	**DRec/DR**	**Doctor of Recreation**
DEnv	**Doctor of Environment**	**DSc/ScD**	**Doctor of Science**
DESc/ScDE	**Doctor of Engineering Science**	**DScD**	**Doctor of Science in Dentistry**
DF	**Doctor of Forestry**	**DScH**	**Doctor of Science and Hygiene**
DFA	**Doctor of Fine Arts**	**DScVM**	**Doctor of Science in Veterinary Medicine**
DGS	**Doctor of Geological Science**	**DSM**	**Doctor of Sacred Music**
DHL	**Doctor of Hebrew Literature/Letters**	**DSSc**	**Doctor of Social Science**
DHS	**Doctor of Health and Safety**	**DSW**	**Doctor of Social Work**
DHS	**Doctor of Hebrew Studies**	**EdD**	**Doctor of Education**
DIT	**Doctor of Industrial Technology**	**JCD**	**Doctor of Canon Law**
DLS	**Doctor of Library Science**	**JSD**	**Doctor of Juristic Science**
DM	**Doctor of Music**	**LScD**	**Doctor of Science of Law**
DMA	**Doctor of Musical Arts**	**PhD**	**Doctor of Philosophy**
DME	**Doctor of Musical Education**	**RhD**	**Doctor of Rehabilitation**
DMin/DM	**Doctor of Ministry**	**SJD**	**Doctor of Juridical Science**
DMiss	**Doctor of Missiology**	**STD**	**Doctor of Sacred Theology**
DML	**Doctor of Modern Languages**	**ThD**	**Doctor of Theology**

NSF Publications from the Doctorate Data Project

DATA BRIEFS	***ISSUE BRIEFS***	***REPORTS***
Healthy Economy Yields Even Lower Unemployment Rate for Doctoral Scientists and Engineers	Ph.D. Unemployment Trends: Cause for Alarm?	Science and Engineering Doctorate Awards: 1998
Doctorate Awards Declining in Some Science and Engineering Fields	What's Happening in the Labor Market for Recent Science and Engineering Ph.D. Recipients?	Science and Engineering Doctorates: 1960-91
Despite Increases, Women and Minorities Still Underrepresented in Undergraduate Science and Engineering Education	Is the Gender Gap in Unemployment Disappearing?	Characteristics of Doctoral Scientists and Engineers in the U.S.: 1997 Early Release Tables
Doctoral Awards Increase in S&E Overall, But Computer Science Declines for First Time	What is Happening to Academic Employment of Scientists and Engineers?	Characteristics of Doctoral Scientists and Engineers in the U.S.: 1997
Employment of Scientists and Engineers Reaches 3.2 Million in 1995	International Mobility of Scientists and Engineers to the United States – Brain Drain or Brain Circulation	Who is Unemployed? Factors Affecting Unemployment Among Individuals with Doctoral Degrees in Science and Engineering
Number of Doctoral Scientists and Engineers Grows by 6 Percent Between 1993 and 1995	What is the Debt Burden of New Science and Engineering Ph.D.'s?	Science and Engineering State Profiles: 1997
Data sources and publications sources: ***These publications contain data from the annual Survey of Earned Doctorates(a universe survey on the education of research doctorates) and the biennial Survey of Doctorate Recipients (a longitudinal sample survey of S&E doctorates on the workforce characteristics).*** ***Complete electronic information on these surveys and publications may be obtained from www.nsf.gov/sbe/srs/stats.htm.*** ***Written reports may be ordered online at www.nsf.gov/home/orderpub.htm or by calling 301-947-2722.*** ***For further information please contact Susan T. Hill, Director, Doctorate Data Project, sthill@nsf.gov.***	Are Forms of Financial Support and Employment Choices of Recent Science and Engineering Ph.D.'s Related?	Doctoral Scientists and Engineers in the U.S.: 1997 Profile (forthcoming)
	Does the Educational Debt Burden of Science and Engineering Doctorates Differ by Race/Ethnicity and Sex?	Statistical Profiles of Foreign Doctoral Recipients in Science and Engineering: Plans to Stay in the United States
	Degrees and Occupations in Engineering: How Do They Diverge?	Women, Minorities, and Persons with Disabilities in Science and Engineering: 1998
	Has the Use of Postdocs Changed?	Science and Engineering Degrees: 1966-96
	How Much Does the U.S. Rely on Immigrant Engineers?	Science and Engineering Degrees, by Race/Ethnicity of Recipients: 1989-96
	What Follows Postdoctorate Experience? Employment Patterns of 1993 Postdocs in 1995	SESTAT: A Tool for Studying Scientists and Engineers in the United States
	How Large is the Gap in Salaries of Male and Female Engineers?	

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